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CONTENTS

February 13, 1933

THE WEEK IN PERSPECTIVE 5

The Voice of Industry 6
Steel Construction Leader Sees New Era for Industry 7
Financial News of the Steel Industry 8
Business News from Washington 9
Mirrors of Motordom 10
January Steel Ingot Output 19.1 Per Cent Over December 11
Here and There in Industry 11
Personals 12
Obituary 13

EDITORIAL—Rising Tide of Protest Is Favorable Sign 14
THE BUSINESS TREND 15

Seamless Mill Forms Small Tubing Without Reheating 17
Wrought Iron Bridge Rehabilitated by Welding 20
New Books Worth Reading 22
Improving Open-Hearth Design—Part IV, Continued 24
Making the Most of Methods and Materials 27
Scanning the Field of Technology 28
Progress in Steelmaking 30
New Equipment 31

MARKET REPORTS AND PRICES 34-50
STATISTICS OF THE STEEL INDUSTRY 51
CONSTRUCTION AND ENTERPRISE 52
ADVERTISERS' INDEX 58

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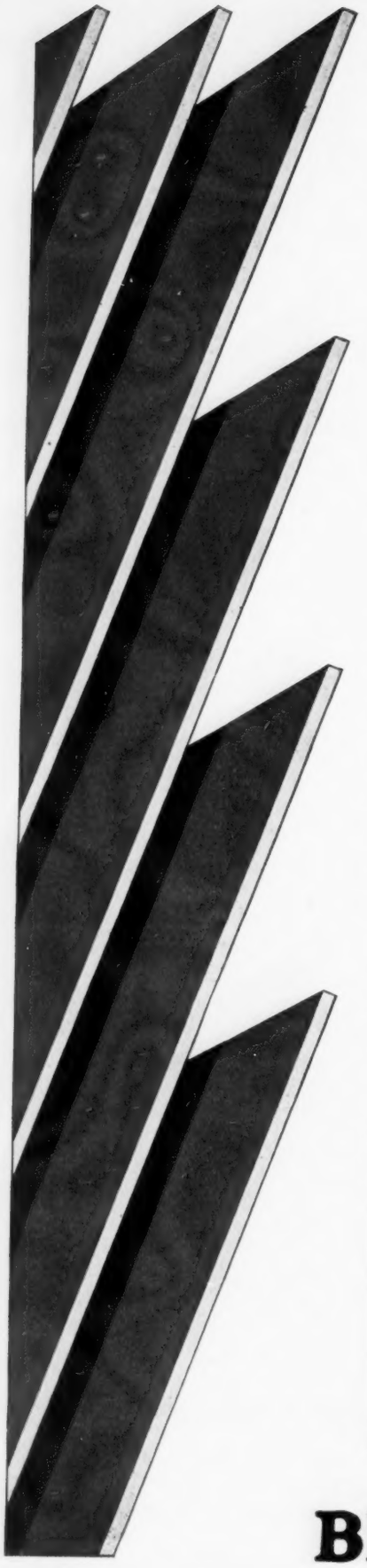

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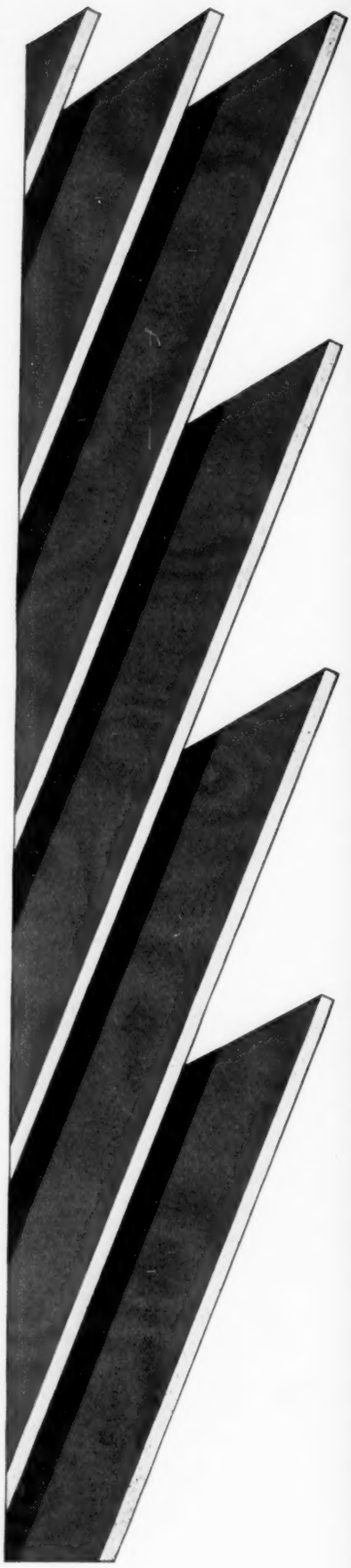

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Volume 92 Number 7

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

GOING into the fourth year of the depression, the country is rapidly getting to the place where it no longer is "taking it lying down." Last week it was noted here that the iron and steel industry was shifting from a defensive to an offensive position in the markets. In a less lawful but a significant manner the embattled farmers of the Middle West are on the aggressive, rallying to frustrate forced sales of land and stock and tools. And labor in the unorganized automotive industry has suddenly become aroused to contest low wages and restrictive working conditions. To the extent that this quickened spirit represents a protest against conditions and not against authority it may be a symptom of recovery (p. 14).

Labor Warning May Stiffen Prices

Labor is waging a hopeless battle in attempting to reverse the open-shop status of the automotive industry, and a more glaring tinge of red is appearing in the strike leadership at Detroit, but it is conceded (p. 54) that the showing of resistance may serve a useful purpose by notifying all industry that the way to recovery is not further inroads on wages but a stiffening of prices. . . . Pushing the strike in the background is the first showing of the new larger Ford eight, more radical in style than mechanical changes (p. 10). The real ace of Ford is yet to be played—a small car priced under $400, due in the spring and expected to draw fire from Chevrolet in the form of a small new model by that interest.

A Stand Backed by a Profit Record

Speculation that the steel industry might further liquidate labor has drawn from the chairman of National Steel, only integrated producer to report a profit for 1932, a strong pronouncement (p. 8) that another reduction "would be unfair . . not add a single ton to sales . . encourage buyers to hope for further concessions." . . . Labor is not without its advocates in state legislatures. Forty-three states are considering (p. 8) some form of unemployment reserves, while in Indiana a strict anti-injunction bill has been passed (p 40) . . . . Indiana also is in the news for a proposal (p. 8) to levy a sales tax on iron and steel products.

Steel Markets Confused, but Holding

A curious mixture of good and bad news constitutes this week's iron and steel markets. . . . Steelmaking operations by a narrow margin remain at 19 per cent (p. 42). . . . Unfilled tonnage of the Steel corporation is off 69,496 tons to a new alltime low (p. 51). . . . Ingot production in January expanded 19.1 per

Sixty-one years of blast furnace history could be related by the old Soho blast furnace of the Jones & Laughlin Steel Corp., which began last month to demolish it

cent (p. 11), a greater gain than a year ago and supplying a January average of 17.78 per cent. . . . A New York commission has approved (p. 38) proposed R. F. C. projects requiring 200,000 tons of structural steel. . . . An Erie railroad inquiry for 30,000 tons of rails appears near (p. 37), with a New York Central requirement problematical.

New Uses to Eclipse Depression?

Crystal gazing into future steel markets, a promoter of structural uses visualizes (p. 7) steel piers, foundations, walls, floors and residences offering encouraging tonnages to the mills. . . . And this business will accrue largely to domestic producers if the "Buy American" movement spreads. Seattle, which already has barred foreign pipe from its waterfront development, is considering (p. 49) an embargo on alien sheets. . . . The treasury-postoffice appropriation bill carries (p. 9) a bar on foreign materials. . . . Europe, meanwhile, is looking to its own fences, reconstituting (p. 49) the steel entente for five years dependent upon formation of international export selling syndicates.

Elongator Is New Magic of Tube Mill

Simultaneous reduction of the diameter and wall thickness of seamless tubing by cross rolling is the merit of a new type of mill now in operation in the plant of a large tube manufacturer (p. 17). Heating, piercing and elongation are the only three steps required, compared with five in an automatic mill. The reduction in operations is accomplished by the elongator. With a single heat a billet is pierced and sent through the elongator, emerging as a tube of 1⅝-inch outside diameter with a No. 14 gage wall thickness, free from internal scratches and offering the highly-desired concentricity. . . . Current demand for tubing and pipe of all classifications is dull (p. 40). Spring work, however, should develop shortly.

What's What in Engineering News

A new photographic plate for metallographic work has been introduced (p. 19), its high resolving power, availability of high or low contrast, and absence of sensitivity to red light making it valuable for photomicrographing metal specimens. . . . Welding is rehabilitating and strengthening (p. 20) a 45-year old wrought iron bridge in Pennsylvania. . . . Three general types of skewbacks can be used in open-hearth furnace construction (p. 24): Flat, floating, suspended. . . . Fifty weekly reports on the transmission of mechanical power from electric motor to driven load by means of belting and other means are emanating (p. 19) from a leather belting association.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

Parting Shots at Technocracy

"Technocracy hints at a machine-controlled world, which implies standardization. But the world cannot be standardized. You can standardize materials, but you can't standardize ideas."

—C. F. KETTERING, Vice President, General Motors Corp.

What Is Technocracy?

"Technocracy seems to be the depression equivalent of mahjong and Tom Thumb golf."

—HOWARD WOOD, *Chicago Tribune*

"A collection of booby-traps."

—WALTER LIPPMAN, in *New York Herald-Tribune*

"A pompous superstition."

—VIRGIL JORDAN, National Industrial Conference Board

Exaggerations Mislead the Public

"Sweeping statements of the character attributed to technocracy, colored by citing a few specific instances, serve to mislead the public, but are no more true than to say that because medical science knows the prevention and cure for every disease to which man is subject (with the possible exception of cancer and black plague) illness and death from the majority of man's many bodily afflictions will be stopped."

—WALTER N. POLAKOV, President, Walter N. Polakov & Co.

Meaningless Scientific Jargon

"Technocracy has presented a multitude of alarming conclusions, but has withheld supporting facts. Convalescing business has been hit below the belt by a pseudo-scientific fist, armed with the brass knuckles of an imposing but meaningless scientific jargon."

—DR. WALTER R. INGALLS, President, American Institute of Weights and Measures

How Old Is Ann?

An officer of a steel company tells the following story to illustrate his opinion of Technocracy:

A man propounded this question to another: "If a train left Chicago for New York traveling at a speed of 40 miles per hour, and another train, at the same time, left New York for Chicago at a speed of 60 miles per hour, how old am I?"

"36 years," replied the other man.

"That's right," said the first one, "but how did you figure it?"

"That was easy," returned the second man. "I have a nephew at home aged 18 and he is just exactly half as crazy as you are."

Steel Construction Leader Sees New Era for Industry

STEEL piers, steel foundations, steel walls, steel floors, and steel residences are among the recent new developments ready for the market. They will be cheaper and will make for better construction, declared Charles F. Abbott, executive director, American Institute of Steel Construction, New York, in an address before the ninth annual conference of the Iron, Steel and Allied Industries of California, meeting in Del Monte, Calif., Feb. 9.

These improvements in steel construction, developed from the intensive research of the past years of the depression, stated Mr. Abbott, represent the industry's program to bring its business back to a normal, prosperous basis.

"Human nature is weak and human beings require the spur of hard times to force them to improved positions," he said. "It is for that reason that the greatest industrial improvements are designed and planned during periods of business depression. Through a greater knowledge of the nature of our raw materials and by means of improved knowledge of the methods of utilizing them, we can make structural steel render a greater service than ever before. We can remake or rebuild our entire world.

"Scientific research and invention will bring into existence new industries that will surpass any that we have as yet promoted. This development will be vast and magnificent. It will be a period of far greater opportunities and those who have the will to conquer will benefit the most."

20,000,000 Tons Potential

The estimated potential market for the new uses of steel as so far developed and found to be practical, would undoubtedly exceed 20,000,000 tons, if these new markets were fully developed, Mr. Abbott pointed out. This represents a volume five times the present combined production of the steel construction industry.

The speaker mentioned that the five-day week is opening up new possibilities for amusements, as is also the elimination of city slums. Construction will be proportionately affected and we will encourage municipal and national parks and the completion of swimming pools, outdoor gymnasiums and country hotels.

Additional leisure will promote the building of many structures for indoor recreation and amusement. Theaters and movies will flourish, great arenas for football, baseball, tennis, skating, and the like will be built to permit outdoor sports for winter and at night.

Abolition of the eighteenth amendment, without return of the saloon, but with more general leisure, may well bring about the European way of drinking, said Mr. Abbott, with a demand for beer gardens, dance pavilions and music halls.

Development of air conditioning is bringing into being a new industry of great possibilities. It will not be long before we shall be able to inhabit homes, offices and hotels with rooms of even temperature throughout the year and with better and more healthy ventilation.

Cites Value of Steel Floors

The development of steel floors for buildings and residences represents a new market that could call for more than 5,000,000 tons of steel, in the estimate of Mr. Abbott. Better floors at lower costs would add greatly to superior and more economic structures.

Steel highway roadguards have been perfected and when the public becomes acquainted with their advantages they will undoubtedly be installed to guard all our highways.

These and other accomplishments demonstrate the possibilities of a constantly increasing business which should eliminate the intense competition and price cutting that we always experience whenever the supply exceeds the demand.

We must not forget, however, cautioned the speaker, that research, new uses and new markets will fail completely unless the public is first acquainted with and educated to all of the advantages. Their acceptance must first be obtained before a demand can exist. Orders never happen, they must be stimulated by conviction and this calls for intelligent advertising, promotion and aggressive salesmanship.

The financing of such an undertaking should be based upon the volume of business that it is possible to obtain and with appropriations made in sufficient yearly amounts to insure continuity.

The progress of all business will depend as never before upon more intensive studies of markets with practical plans to meet new requirements, said Mr. Abbott in conclusion. The cultivation of new markets and the expansion of existing markets, will be the aim of management.

Steel Corporation Orders New Cold Rolling Mills

American Sheet & Tin Plate Co., Pittsburgh, has placed an order with the E. W. Bliss Co., Salem, O., for construction of what is declared to be the world's largest cold rolling mill. This unit, to cost $500,000, will be installed in the company's plant at Gary, Ind.

With this order, the Bliss plant has resumed activity after being closed for more than a year and has recalled a number of workmen. More will be called back as rapidly as materials arrive.

There is sufficient work on hand,

THE BIG TWO OF BIG STEEL—William A. Irvin, president, and Myron C. Taylor, chairman—have a ready smile even if business is slow

Acme Photo

according to Lloyd Jones, manager, to insure operation of the Salem plant for at least six months. Normally about 100 men are employed.

The mill is of special design for cold rolling sheets and strips up to 72 inches wide and in long lengths. The rolls will have a face of 84 inches which can be changed to 96 inches as desired. The housings, of unusually large size, will be of welded steel plate construction, this being a new practice in rolling mill design.

A second cold rolling mill, similar to the first, has been ordered by American Sheet & Tin Plate Co. for its Vandergrift, Pa., plant. This unit will be constructed by the United Engineering & Foundry Co., Pittsburgh.

National Steel Chairman Opposes Wage Reductions

Ernest T. Weir, chairman of the National Steel Corp., Pittsburgh, has issued a vigorous statement opposing further wage reductions.

"Steel manufacturers are not justified in even considering any further liquidation of labor. It would be unfair," Mr. Weir declared.

"We have gone, if anything, too far along those lines. It is true that the capital invested in the industry has suffered a very heavy reduction of its earnings, but labor has certainly borne its part of the burden.

"Another wage cut at this time will not add a single ton to the sales of steel. On the contrary, it may be expected to produce a decrease in sales, for buyers will tend to withhold purchases in the hope of still further concessions."

Indiana Weighs Sales Tax

A sales tax bill now before the Indiana legislature provides the following tax on gross sales: Two per cent on bolt mills, road machinery dealers, sheet metal shops, farm implement and tractor dealers, and all machine shops; and ¼ of 1 per cent on foundries. The bill is an administration measure and the trade is reported to be poorly organized to combat such legislation.

Warehouse Merger Effective

Merger of Carnegie Steel Co. warehouses and Illinois Scully Steel Warehouse Co. under the name of the Scully Steel Products Co. became effective Feb. 1. General headquarters are at 1319 Wabansia avenue, Chicago. Warehouses are in Chicago, Baltimore, Pittsburgh, Cleveland, Newark, N. J., St. Louis, Boston and St. Paul. Charles Heggie is president.

Financial News of Steel Industry

CRUCIBLE STEEL CO. of America reports net loss of $3,613,616, after charges, in 1932, compared with net loss of $2,016,517 in 1931. According to H. S. Wilkinson, chairman, the 1932 nonoperating loss exceeded $400,000, of which $300,000 was caused by the suspension of ore mine operations. The balance sheet notes current assets of $17,825,421 and current liabilities of $3,249,796.

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United Engineering & Foundry Co., Pittsburgh, reports net loss of $340,532 for 1932 against 1931 net earnings after all charges of $953,708, or $2.12 a common share. Preferred stock was reduced from 15,750 to 8661 shares in 1932. Ratio of current assets to current liabilities at the end of 1932 was 28 to 1 against 21 to 1 as of Dec. 31, 1931.

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Interlake Iron Corp., Chicago, and subsidiaries, had a net loss of $2,169,887 after all charges in 1932, compared with net loss of $1,357,502 in 1931. Fourth quarter loss was $224,838, against loss of $338,701 in third quarter. Current assets Dec. 31, 1932, totaled $11,470,330, against current liabilities of $1,123,213.

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Pittsburgh Steel Foundry Co., Glassport, Pa., reports net loss for 1932 after interest, depreciation and all other charges of $320,890, against net loss of $110,665 in 1931.

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Page-Hersey Tubes Ltd., Welland, Ont., reports profit of $481,852, after charges, in 1932. Earnings per common share, on which the dividend is $3, were $1.95 after dividends on preferred shares and provision for taxes and depreciation. Ratio of current assets to current liabilities Dec. 31 exceeded 15 to 1, compared with 11 to 1 a year ago.

Unemployment Reserves Plan To Be Issued

Legislatures in 43 states will be in regular session this year, and in practically all of them bills providing for unemployment insurance or reserves have been or will be introduced.

"If, as recent developments clearly indicate, legislation of some kind is inevitable, industry should take measures for shaping the course of legislation, particularly for preserving to employers the right to establish and operate their own plans," says the National Industrial Conference board, New York, in a current bulletin. "The most effective way to combat objectionable proposals of legislation is to offer sound alternatives that will command the support of legislators and the public."

The board announces the early publication of a program for unemployment reserves for American industry as worked out in the past year by its research staff and a committee of business and personnel executives. "It is important," it states, "that agreement should be reached among employers on the fundamentals of an effective program."

Machine Tool Employment Higher in December

An increase of 2.6 per cent in the number employed in 147 machine tool plants in December, compared with the same for November, is reported by the bureau of labor statistics. In 209 identical iron and steel plants for the two months, employment was down 2 per cent; and for 38 cast iron pipe plants, down 3.8 per cent. In structural steelwork plants the reduction was only 0.8 per cent.

Douglas Medal to Elton

James Orr Elton, Salt Lake City, Utah, since 1921 manager of the International Smelting Co., Salt Lake City, has been named the recipient of the James Douglas medal for 1933 by the American Institute of Mining and Metallurgical Engineers. This is conferred upon him for his work in the treatment of smelter fumes and other advances in lead, zinc and silver ore smelting. Presentation will be made Feb. 22.

Bethlehem Relief $1,171,000

Bethlehem Steel Corp. relief plan during 1932 paid $1,171,000 in benefits, it was reported at the annual meeting of trustees of the plan in Bethlehem, Pa., Feb. 7. During the year, 4925 persons came under the disability relief provisions, and families of 573 persons received death benefits. All costs of administration are paid by the Bethlehem corporation.

Dravo Shipping Dam Spans

First of five large structural steel spans, each 18 feet high by 108 feet long, is leaving the fabricating yards of the Dravo Contracting Co., Pittsburgh, this week for the roller top dam at Marmet, W. Va. Spans are to be equipped with a standard gage railway track to permit operation of a 30-ton locomotive crane. Spans are

so designed that on their lower level, two 15-ton electric hoists will be placed to manipulate the seven bulkheads, each of which will weigh 28 tons.

Unfilled Tonnage Drops

Unfilled tonnage of the United States Steel Corp. as of Jan. 31 was 1,898,644 tons, compared with 1,968,140 tons as of Dec. 31, 1932. This is a decline of 69,496 tons, or 3.5 per cent, and marks a new low for unfilled tonnage figures. The total as of Jan. 1, 1932, was 2,648,150 tons. Comparisons are shown on page 51 of this issue of STEEL.

Will Ship by Railroad

American Institute of Bolt, Nut and Rivet Manufacturers, at a recent meeting in Pittsburgh, adopted a resolution that it would employ the railroads "as transportation agencies insofar as this may be practicable, for it believes that the prosperity of these carriers is essential to the welfare of the country."

Moves Bar Mill to Reading

Reading Iron Co. is transferring its 18-inch bar mill from Danville, Pa. to Reading, Pa. Installation is expected to be completed by April 15. An official is quoted as stating that the move is being made because of the "many economies that will be effected by centralization with other plants of the company in Reading."

Business News Of Washington

INTERSTATE commerce commission on Feb. 7 gave the railroads until Feb. 25 to reply to the petition of the National Lumber Manufacturers' association, National Coal association and several farm organizations, including the American Farm Bureau Federation, calling for immediate and general reductions in freight rates on basic commodities.

The commission's notice was served on the Association of Railroad Executives and American Short Line Railroad association, their representatives, to appear Feb. 25 to argue the case. The immediate issue is whether the commission should institute proceedings looking to an adjustment of rates, and at this time the level of rates is not up.

It seems likely that this demand for lower rates will be considered by the commission along with the proposal of the carriers to extend the present emergency freight rate surcharges after March 31.

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A democratic caucus has been held in the house of representatives in connection with the vote to be taken, Feb. 13, on depreciated currency bills.

The caucus has bound members of the Democratic party to vote against the depreciated currency bills, and while the vote will probably be close it is now considered, as the result of the meeting, that the bill will not be passed when it comes up Feb. 13.

At the same time, President Hoover last week at one of his regular newspaper conferences again stated his stand on the depreciated currency situation calling attention to increased imports coming into the United States from countries having depreciated currency.

Secretary of Commerce Chapin also issued a statement on the subject calling attention to the fact that "this is an emergency situation and legislative action should be taken without waiting for the convening of the world economic conference."

Speaker Garner on Feb. 3 predicted "there will be no foreign depreciated currency legislation enacted at this session of congress. It is unnecessary if not foolish to undertake such a large problem as this with the senate in the condition it is."

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In passing the treasury-postoffice appropriation bill the senate has included an amendment for the purchase of materials for government projects of American production.

The amendment, which was introduced by Senator Johnson, of California, provides specifically that "only such manufactured articles, materials, and supplies as have been mined or produced in the United States, and only such manufactured articles, materials and supplies as have been manufactured in the United States substantially all from articles, materials or supplies mined, produced or manufactured, as the case may be, in the United States, shall be acquired for public use."

The amendment provides, however, that this provision applies only if the head of the department shall determine it to be not consistent with the public interest or the cost to be not reasonable, and provides further that the provision shall not apply if the articles are not available in the United States in "sufficient and reasonably available commercial quantities and of a satisfactory quality."

It is further provided in the amendment that contracts for construction, alterations or repair of any public building or public work contain a provision to carry out the terms of this amendment.

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Myron C. Taylor, chairman of the United States Steel Corp., will be heard Feb. 24 by the senate finance committee which is conducting an economic investigation. E. T. Weir, chairman of the National Steel Corp., will be heard Feb. 16.

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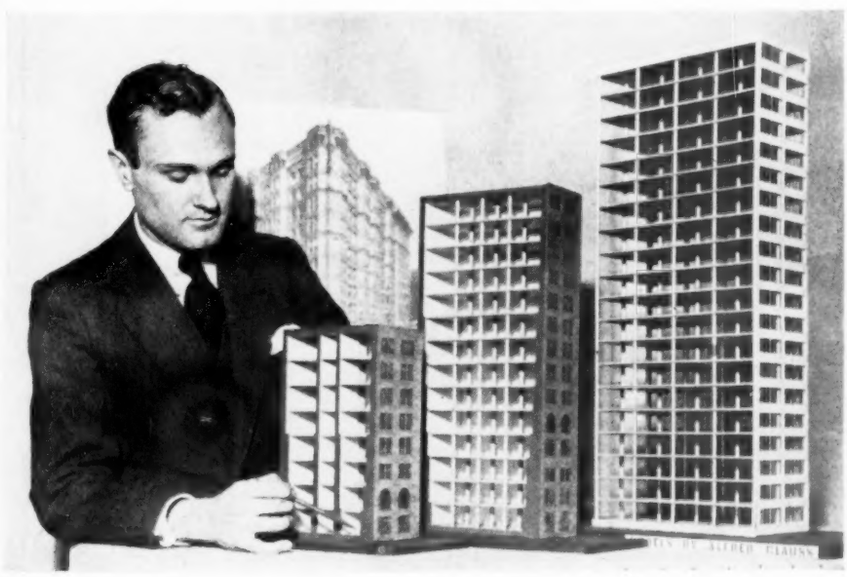
Bids received recently for scrapping 40 shipping board vessels being so low the proposed sale has been postponed, and there is no intention of calling for bids soon.



Wide World Photo

FROM MASONRY TO STEEL: The revolution in construction from the low, heavy, dark masonry building at the left to the high, light, airy towers of today is traced by models at the exhibition of early modern architecture at the Museum of Modern Art, New York. Philip Johnson, director of the exhibition, is pointing to the old-style masonry model

MIRRORS OF MOTORDOM

DETROIT

FORD is actively back in the automotive picture with the formal showing of the new large eight, broadening releases of material for volume production, and the closing of bids this week on an unstated but substantial tonnage of steel, these bids probably determining whether the steelworks at Fordson will be reopened.

Practically normal production of Ford bodies is claimed by the Briggs Mfg. Co. It will be a few days, of course, before the Ford assembling plants in various cities can resume fully. The middle of last week a little material began moving into Fordson, but real volume will not be attained before the end of this week.

In the new model, designated as 40, the most radical change is in styling, there being a complete redesign of the body, hood and fenders. Most novel, perhaps, is the complete disappearance of the radiator shell, the hood joining the rustless steel bead of the V-shape slanting radiator. The thin vertical fins of the grille are dull rustless steel.

Fender Valances Are Braced

The hood, with vertical louvres which are longer at the cowl than at the radiator end, comes within several inches of the windshield pillars. The slant of the windshield is about 20 per cent and that of the V of the radiator about 15 per cent.

Front fenders have medium-size valances which are braced by a rod attached to the frame. The running board is rubber molded on steel with a rise at the front blending in with the fenders. Splash shields have entirely disappeared. The rear of the bodies and the gasoline tank shield form a beavertail design.

Front headlamps, which are rustless steel, are mounted directly upon the fenders and there no longer is a spanner bar. Bumpers are of the drip style. All bodies are set directly on the frame, sills being eliminated.

A new-style windshield is hinged at the top and opens out at the bottom. Three grips are provided on the three-spoke steering wheel. Instruments are mounted in one panel directly in front of the driver, leaving the right half of the instrument board free for a compartment. Greatly increased foot room in front is provided by a sheet steel bulkhead directly behind the engine.

Aluminum Head Standard

The V-eight engine remains unchanged with a bore of 3 1/16 inches and a stroke of 3¾ inches, the displacement, crankshaft, bearings and other details being identical with model 18, now displaced.

However, the cylinder head is now an aluminum casting, providing greater compression and with slightly larger valve ports enabling horsepower to be pushed up to 75 and top speed to 90 miles. Smaller spark plugs, completely water-jacketed, are provided.

The coil is smaller, being reduced from 1 3/10 pounds to 7/10 pound; new type distributor points have a life of 50,000 miles; the throttle opening has been increased to eliminate preliminary choking; gasoline consumption averaging two miles more per gallon than the present V-eight, or about 22 miles on a straightaway, is claimed.

The wheelbase of the new Model 40 is 112 inches, or 6 inches longer. The overall length has been increased from 165 inches to 177 inches, all being taken up in the body. The steel frame is 6 inches deep and 1/10-inch thick, with an inner X-frame extending past the motor in the front.

Transverse springs have been retained both front and rear, but with one less leaf, and the remaining leaves slightly wider and heavier. The transmission is unchanged, retaining syncro-mesh gearing but without freewheeling or an automatic clutch.

A straddle pinion with a roller bearing in the rear of the pinion is now standard in the rear axle assembly. The number of spindles has been increased from three to four. Complete absence of noise is now claimed for the rear end.

Tires are now 5.50 x 17 instead of 5.25 x 18. Shock absorbers are mounted on the inside of the frame. On standard models, one trumpet style horn is mounted outside; on deluxe models there are two rustless steel trumpets and two rear lights.

All doors open at the front. Safety glass is standard in the windshield of all models and also in the rear and side windows of deluxe models. About 200 more pounds of weight is claimed, making the 2-door sedan weigh about 2700 pounds. The sport coupe of 1932 has been eliminated, the line now consisting of standard and deluxe 2 and 4-door sedan, a victoria, cabriolet and a 5 and 3-window coupe.

Smaller Model in 60 Days

With the introduction of the larger Ford eight, retail sales of Chevrolet, Plymouth, Pontiac, Continental and Willys face a new factor. But it needs to be remembered that the model on which Mr. Ford expects to make his greatest stand to recover primacy in the low-price market is the small, 105-inch wheelbase car scheduled to come out in about 60 days. The engine of this smaller model is reported to be more of a Y and a V, about 3 1/16 x 3 inches and main bearings about 4 11/16

(Please turn to Page 54)

Here and There In Industry

BRILL CORP., Philadelphia, coordinated sales and service activities of its subsidiaries, the A. C. F. Motors Co. and J. G. Brill Co., as of Feb. 1. George Frey, for years working with urban and interurban transportation companies, is in charge of the new department. All sales and servicing of the company's motor coaches will be consolidated with the sales and service organization of the J. G. Brill Co.

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Kinney Iron Works, Los Angeles, has been licensed by the Meehanite Metal Corp., Chattanooga, Tenn., to manufacture Meehanite castings under the latter's patents.

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Allegheny Steel Co., Brackenridge, Pa., has moved its executive offices to larger quarters in a four-story building formerly occupied by the West Penn Steel Co. before its merger with the Allegheny Steel Co.

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Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y., has been licensed by the Dardelet Threadlock Corp., New York, to manufacture and sell bolts and nuts with the Dardelet self-locking thread.

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Gellman Mfg. Co., 1700 First street, Rock Island, Ill., at its annual meeting elected I. C. Gellman president, A. W. Gellman vice president and treasurer, and Elmore A. Gripp secretary. Mississippi Foundry Corp., Rock Island, Ill., an affiliate, has elected A. W. Gellman president, H. W. Reed vice president, I. C. Gellman treasurer and Elmore A. Gripp secretary.

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A. O. Smith Corp., Milwaukee, has sold two cracking units to the E. R. Badger & Sons Co., Boston, for delivery to the Association Oil Co. refineries at Watson and Avon, Calif. The units consists of two evaporators, one weighing 103,000 pounds and the other 25,300 pounds; a fractionator for high octane gasoline production, weighing 176,200 pounds, and a stabilizer, 41,600 pounds. Shell Petroleum Co. has ordered a large fractionator, 230,000 pounds, for its East Chicago, Ind., refinery.

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Tuthill Spring Co., 760 Polk street, Chicago, has appointed the following distributors for its highway guard, an all-metal resilent safety appliance: Joseph S. Potts Jr. & Co., Travelers building, Richmond, Va., for Virginia; R. B. Gress, Box 504, Little Rock, Ark., for Arkansas; Browning-Ferris Machinery Co., 205 Exposition avenue, Dallas, Tex., for Texas; Robert T. Twedt Co., Fifteenth and Pioneer streets, Cheyenne, Wyo., for Wyoming; New Orleans Materials & Equipment Co., 213 Pan American building, New Orleans, for Louisiana, Mississippi and Alabama; D. C. Elphinstone Inc., 115 South Calvert street, Baltimore, for Maryland and Delaware.

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Lancashire Steel Corp., formed in 1930 to acquire the iron and steel interests of the Partington Iron & Steel Co., the Wigan Coal & Iron Co., Pearson & Knowles Ltd. and Rylands Bros., at Irlam near Manchester, England, has absorbed the Whitecross Co., manufacturer of wire products. This is a further step in the process of rationalization submitted to the Bank of England by H. A. Brassert & Co., Chicago.

The first step in the program of the Lancashire corporation was the installation of an ore dock, by-product coke plant, blast furnace improvements, new open-hearth furnaces, blooming mill and finishing mills. A continuous wire rod mill and nail plant are now under construction. The Brassert company has been the consulting engineers for the entire program. The continuous wire rod mill, now under construction, will be one of the largest and most modern, making possible the production of wire products in Lancashire, made solely from British materials.

Steel Ingot Output in January Exceeds December Production by 19.1 Per Cent

PRODUCTION of open-hearth and bessemer steel ingots in January increased 19.1 per cent over December, an expansion which was practically five times the 3.9 per cent gain registered in the output of pig iron in January.

The average daily ingot rate for January was 38,704 gross tons, compared with 32,485 tons in December and 56,133 tons in January, 1932. The January rate of activity was 17.78 per cent, contrasted with 15.02 per cent in December and 25.96 last January. The January percentage is not far below the 19.41 average for all 1932.

Total output of open-hearth and bessemer ingots in January was 1,006,297 tons, compared with 844,618 tons in December and 1,459,450 tons in January, 1932. The low point for modern times in total monthly production was 792,533 tons last July, but the low on a daily average basis was the 30,830 tons of last August. The rebound in the daily rate from this all-time low is approximately 30 per cent.

This upward movement in ingot output is to a degree seasonal, January for a number of years showing a gain over the preceding December as consumers enter the market after inventory and show greater activity after the year-end lull in demand.

Electric and crucible steel are not included in this showing.

Steel Ingot Production — 1932-33

95.33 Per Cent of Industry Reporting
Gross Tons

1932	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent operation
Jan.	1,230,661	160,633	1,391,294	1,459,450	26	56,133	25.96
Feb.	1,232,568	157,067	1,389,635	1,457,710	25	58,308	26.96
Mar.	1,149,307	193,944	1,343,251	1,409,054	27	52,187	24.13
Apr.	1,036,227	144,197	1,180,424	1,238,250	26	47,625	22.02
May	950,785	103,593	1,054,378	1,106,030	26	42,540	19.67
June	755,123	100,249	855,372	897,275	26	34,511	15.96
July	652,650	102,872	755,522	792,533	25	31,701	14.66
Aug.	696,206	97,323	793,529	832,402	27	30,830	14.26
Sept.	804,556	124,970	929,526	975,061	26	37,502	17.34
Oct.	885,773	132,876	1,018,649	1,068,550	26	41,098	19.00
Nov.	838,559	128,844	967,403	1,014,794	26	39,031	18.05
Dec.	722,522	82,652	805,174	844,618	26	32,485	15.02
Total	10,954,937	1,529,220	12,484,157	13,095,727	312	41,973	19.41
1933							
Jan.	850,303	109,000	959,303	1,006,297	26	38,704	17.78

Figures exclude crucible and electric ingots. Operating percentages are based on 67,473,630 tons annual capacity as of Dec. 31, 1931.

Industrial Men in the Day's News

Robert J. Tully, Assistant General Supt., Clairton Works, Carnegie Steel Co.

IN the Pittsburgh and New Castle districts he has spent the 38 years of his business career.

HIS first company was absorbed by the Carnegie Steel Co.; later connections have been Steel corporation subsidiaries.

FISHING is his hobby. Indicating civic interest, he has been president of the New Castle Y. M. C. A. and director of the chamber of commerce.

ROBERT J. TULLY, who was noted in STEEL, Jan. 2, as succeeding to the post of assistant general superintendent of the Clairton works of the Carnegie Steel Co., Pittsburgh, is a man young in years but old in experience in the operating end of the steel industry.

He was born in England in 1880 and came to this country at the age of seven. After a common schooling he began his business career at the age of 15, when on June 3, 1895, he entered the service of the New Castle Wire Nail Co., New Castle, Pa., as a machinist's apprentice. This company was later absorbed by the Carnegie Steel Co.

Four years later, in 1899, Mr. Tully was engaged in the construction of the Farrell, Pa., plant of the Carnegie Steel Co. In 1902 he became associated with the New Castle works of the American Sheet & Tin Plate Co., Pittsburgh.

For 16 years Mr. Tully remained with the American Sheet & Tin Plate Co. and in April, 1918, he returned to the Carnegie Steel Co. as master mechanic of the New Castle, Pa., steelworks. On Nov. 1, 1926, he was promoted to the general superintendency of the New Castle plant, and held that post until his recent promotion to the Clairton works.

In his new capacity he is assistant to Frank F. Marquard, who in turn, succeeded Henry J. Davis as general superintendent in charge of operations at the Clairton steelworks and Clairton by-product coke plant.

Mr. Tully is a lover of the outdoors and is an ardent fisherman, this being his chief hobby. He is a member of the Rotary and Keystone Athletic clubs of Pittsburgh and prior to his recent change in position was a director of the New Castle chamber of commerce and president of the Y.M.C.A. there.

C. B. BOYNE, formerly with Ludlum Steel Co., Watervliet, N. Y., as assistant manager of sales and for the last three years assistant manager of sales for the Associated Alloy Steel Co., Cleveland, has returned to the Ludlum company, succeeding C. B. Templeton as assistant to the president. As anounced in the Jan. 30 issue of STEEL, Mr. Templeton now is assistant to the vice president in charge of sales, also having supervision of all advertising. Mr. Boyne will be located at the executive offices of the Ludlum company in Watervliet. The Associated company was disbanded several months ago.

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John R. Hewett, for 20 years editor of the *General Electric Review*, Schenectady, N. Y., has retired on account of ill health.

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John Thomas, sales manager, and Harry C. Hawkins, credit manager, for the Mid-States Steel & Wire Co., Crawfordsville, Ind., recently were injured in an automobile accident near Breckenridge, Tex.

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Charles S. Davis, president of the Borg-Warner Corp. and vice president of the Warner Gear Co., Muncie, Ind., was elected president of the latter company to succeed the late Ray P. Johnson.

J. M. Simpson, general manager, was elected vice president.

Three new directors include E. B. Baltzly, vice president; George Bunner, works manager, and Mr. Simpson.

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Dr. George Oliver Curme Jr., New York, vice president, chief chemist and director of research of the Carbide & Carbon Chemicals Corp., a subsidiary of the Union Carbide & Carbon Corp., New York, has been awarded the Chandler medal for 1933 as "one of the greatest living exponents of aliphatic chemistry."

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Frank S. O'Neil, assistant plant manager of the Link-Belt Co., Indianapolis, has been re-elected president of the Foundrymen's Association of Indianapolis.

Guy E. Street, superintendent of the American Foundry Co., was re-

elected vice president, and Henry W. Bliss, manager and secretary-treasurer of the Sinker-Davis Co., was re-elected treasurer.

For the twentieth year Andrew J. Allen, secretary of the Associated Employers' of Indianapolis and the Indianapolis branch of the National Metal Trades association, is secretary.

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H. F. Seifert, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been appointed general superintendent of the foundry and micarta products division of the company at Trafford City, Pa.

William Laird is now foreman of the brass foundry at the Linhart works of the company.

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David C. Griggs was re-elected president of the Waterbury-Farrel Foundry & Machine Co., Waterbury, Conn., at its recent annual meeting. Other officers include R. L. Wilcox, and Z. P. Candee, vice president; W. D. Pierpont, secretary; L. S. Reed, treasurer; directors, E. A. Anderson, D. C. Pierson, G. R. Lamb, W. S. Fulton and the above elected officers.

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Harold V. Coes, manager of the industrial department of Ford, Bacon & Davis, New York, has been elected president for 1933 of the United Engineering Trustees' Inc., New York, joint agency of the four founder engineering societies.

Charles A. Mead, chief engineer of the division of bridges and grade crossings of the New Jersey board of public utility commissions, was elected first vice president.

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Joseph V. Kiley, of T. J. Kiley & Son, Boston, has been re-elected president and Harry Cohen of H. Cohen & Co., Chelsea, Mass., has been re-elected chairman of the Boston chapter of the Institute of Scrap Iron and Steel Inc. Other officers are: First vice president, Frank Zecchini, of Gutterson & Gould, Lawrence, Mass.; second vice president, Mark Angel, of Roxbury Iron & Metal Co., Dorchester, Mass.; treasurer, B. Movitz, Everett, Mass.; and secretary, William G. Mitchell, Marblehead, Mass.

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C. H. Macdonald, vice president of the Colorado Fuel & Iron Products Co., in charge of sales in the northern California district, has been appointed vice president in charge of sales of all steel and wire products, except raw material. This company is the sales organization subsidiary of the Colorado Fuel & Iron Co., Denver and Pueblo, Colo.

Mr. Macdonald, who has been with the Colorado company since 1927 and is a writer of note on business topics, succeeds S. C. Stannard, marketing manager, who has resigned. His new headquarters are in the general offices of the company in Denver.

Obituaries

CHARLES C. SHEPARD, 74, for many years identified with the iron and steel industry in the Chicago district, died in Omaha, Nebr., Feb. 3. Mr. Shepard formerly was general manager of the Buda Foundry & Mfg. Co., Buda, Ill., the company later being moved to Harvey, Ill. In 1910 he was co-founder of the Ingalls-Shepard Forging Co. at Harvey, later merged with the Wyman-Gordon Co., Worcester, Mass.

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Louis Wageschal, 69, of the Indiana Metal & Machinery Co., Indianapolis, died recently.

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Alfred J. Russell, 69, president of Russell & Watson, manufacturers of metal kitchen equipment, Buffalo, died Feb. 1.

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William Bennett, 75, for the past 30 years production engineer and chief inspector of the Union Steel Casting Co., Pittsburgh, died Feb. 3.

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Adolphe A. Lederhos, resident of Pittsburgh over 25 years ago but at the time of his death treasurer and secretary of the E. T. Ryan Works Inc., Boston, died at Weston, Mass., Feb. 3.

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Robert Steffen, 39, traffic manager of Doelger & Kirsten, Milwaukee, manufacturers of alligator shears, died Feb. 4. He was born in Milwaukee and became associated with the company in 1918.

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Otto A. Ehbe, 72, secretary-treasurer and general superintendent of the Milwaukee Boiler Mfg. Co., Milwaukee, died Feb. 7. He joined the company in 1893, and had been superintendent since 1903.

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Tobias Borochoff, 58, president and founder of the Southern Wire & Iron Works, Atlanta, Ga., died Jan. 23. His son, Isadore Borochoff, and his son-in-law Murray M. Simon, associated with him in the business, are continuing it.

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George T. Heppenstall, partner in the firm of Heppenstall & Marquis, building supplies, Pittsburgh, died at Pittsburgh, Feb. 2. He was a brother of C. W. and S. B. Heppenstall, of the Heppenstall Co., Pittsburgh.

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Rudolph J. Schwab, 82, founder of the R. J. Schwab & Sons Co., Milwaukee, died Feb. 5 at his home in Miami, Fla. He was born in Oshkosh, Wis., and went to Milwaukee as a youth, engaging in the manufacture of furnaces in 1876. He retired in 1919. His sons, Henry E. and Charles E. Schwab, are continuing the business.

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Holbrook FitzJohn Porter, 74, secretary of the National Museum of Engineering and Industry, New York, and chief of the machinery division of the Chicago world's fair of 1893, died at New York, Jan. 25.

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William T. Betty, 69, president of the Austin Mfg. Co., Harvey, Ill., manufacturer of road machinery, died Feb. 6 in San Francisco. Mr. Beatty joined the Austin company in 1885, becoming vice president in 1902 and president in 1911.

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Charles Valentine Barrington, 71, vice president of the Jenkins Valve Co., Bridgeport, Conn., and a native of Chicago, died Feb. 1. He was closely associated, at one time, with Richard T. and Charles R. Crane, of Crane Co., Chicago, and George Westinghouse.

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John J. Flatz, 74, founder and president of the National Foundry Co., Milwaukee, gray iron and semi-steel castings, died Feb. 1. He was born in Mt. Calvary, Wis., going to Milwaukee as a boy. After many years with the Allis-Chalmers Mfg. Co., he established his own shop in 1907.

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William R. Hill, 65, president, Sargent & Greenleaf Co., lock manufacturer, died Feb. 6 at Rochester, N. Y. He became president of the Isko company after being connected with the Sargent Hardware Co., New Haven, Conn., becoming head of the Sargent & Greenleaf Co. in 1923.

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Edward J. Schultz, 44, core room superintendent of the Caterpillar Tractor Co., Peoria, Ill., died Feb. 2. He was well known in the automotive industry and had been connected with the E. J. Ryan Foundry, Cleveland; Ryan & Bowen Co., Lansing, Mich.; Chevrolet Motor Co., Saginaw, Mich.; Lakey Foundry & Machine Co., Muskegon, Mich., and for the past four years has been connected in an executive capacity at the Caterpillar company.

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Willard R. Carroll, 61, a consulting engineer of the Farrel-Birmingham Co., Ansonia, Conn., died at New Haven, Conn., Feb. 3. Mr. Carroll was born in Meridian, Conn., and attended the Sheffield Scientific school of Yale university. Later he was industrial engineer in rolling mills at Rome, N. Y., Waterbury, Conn., and Pittsburgh. During the war he was development engineer for the Derby Mfg. Co., Derby, Conn., and is said to have perfected several processes in the manufacture of machine parts.

EDITORIAL

Rising Tide of Protest Is Favorable Sign

CYNICS who have grown tired of trying to follow the reasoning of economists sometimes express their opinion of the business outlook by saying that when affairs become so bad that they cannot be worse, then they will turn for the better.

While this view is too fatalistic for most individuals, there is a modicum of reality in it. After the public has put up with a trying situation for a long time, there comes a time when patience is exhausted and when words give way to direct action.

Since the first of the year we have witnessed several striking illustrations of this. Farmers and others who were hopelessly enmeshed in mortgage difficulties—impatient over delays in providing a practical solution of their problems—took the matter in their own hands by organizing an effective protest against foreclosures. Their stand has been strong enough to induce a few insurance companies and other creditors to withhold action temporarily.

Another illustration is furnished by the several flare-ups of labor trouble in Detroit and elsewhere. While it is true that the influence of communists or other radical agitators was a factor in the majority of these strikes, the underlying cause was dissatisfaction over low wages or of the basis of payment for work performed.

Orderly Revolt May Be Constructive If It Hastens Solution of Problems

At first glance this tendency toward open revolt appears alarming, but the over-all effect may prove to be more constructive than destructive. One of the favorable results is that the arbitrary action of those in revolt serves to focus attention on the difficulties involved more forcibly than academic discussion among the principals or in legislative halls. Foreclosure and wage strikes will help to bring all of the facts out into the open and to hasten satisfactory solutions.

In both illustrations cited above the protests grew out of conditions that had become unbearable in the minds of the strikers. The farmers and others suffering from the burden of debts had passed the limit of endurance in trying to meet heavy principal and interest payments with the income from farm products at current depreciated prices. Industrial workers who revolted (aside from the influence of agitators) had reached the point where they felt they could not bear a further depletion of their income.

Continuance of foreclosures without restraint and of repeated wage reductions beyond a reasonable point would have resulted in a further reduction of purchasing power available for consumable goods. As long as a farmer puts the bulk of his income into the retirement of past indebtedness, he has little for living expenses. In other words his money is going into capital rather than into consumable products. The industrial workers wage cut likewise reduces his ability to buy the consumable necessities, the production and distribution of which is the foundation of farm and industrial activity.

Higher Prices Would Be Best Assurance Against Further Deflation of Wages

Therefore it is apparent that in industries where wages already have been liquidated severely, there must be a limit below which it is inadvisable to go at this time. Also there is a point in farm deflation beyond which it is dangerous to pursue the collection of debts. In other words, we are approaching closely to the point of final reasonable deflation under present conditions. Of course deflation has not been uniform in all lines of business. Wages and prices of commodities in certain industries still are far out of line. But in the majority of cases, deflation has gone far enough.

The situation can be made much easier by a rise in prices—especially in the prices of commodities that have been below the average levels. Conversely, a continued decline in prices may force a new wave of deflation to a still lower plane.

Therefore renewed attention should be given to the factors which enter into prices. For two years the financial policy of the government has been calculated to stimulate prices but it has been ineffective. Now the time is more appropriate, and with the necessity of the period as an added incentive, the new administration may be able to make some progress in this direction.

If the current wave of protest results in stirring up corrective action, it will have contributed a highly important service to the country.

THE BUSINESS TREND

January Rebound in Steel Better Than Expected

IN VIEW of the unfavorable circumstances prevailing in business in January, the rebound in production of iron and steel from December low points was somewhat gratifying. Average daily output of pig iron in January was 3.9 per cent higher than in December and the daily average of steel ingot production was up by 19.1 per cent.

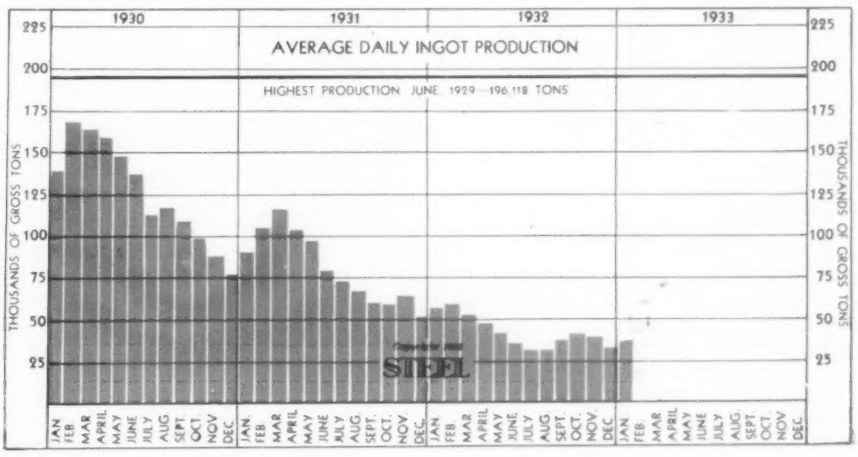
The showing in steel ingot was a shade better than was anticipated by the weekly estimates of the operating rate. STEEL'S estimates for the four calender weeks in January were 15.5, 17, 18 and 19 per cent—an average of 17.38. Inasmuch as the weekly estimates of other publications were consistently lower than Steel's, observers assumed that either STEEL'S figures were too high or those of the other publications were too low.

The monthly report of the American Iron and Steel institute shows that the average operating rate for January was 17.78 per cent. This means that STEEL'S estimates, which were the highest of the four compiled by publications, fell short by .40 per cent, and that the estimates of the other three were low by even a greater margin. This experience, coupled with that of last June when the rate was slipping downward, tends to indicate that the weekly estimates lean toward the conservative side—that is, they are prone to understate the extent of a decline and also to understate the strength of a rise. However, the estimates are surprisingly accurate—especially when it is remembered that the factor of split weeks (weeks that fall into two months) introduces an uncertain variable.

Production Has Gained in Spite of Absence of Buoyant Sentiment

Business still lacks the strong undercurrent of confidence that is necessary for a sustained rise. Car loadings, coal production, and electric power output have suffered moderate declines. Employment is barely holding its own, and in certain districts has been slipping fractionally.

Commodity prices indices continue to slide downward, but in the past week gains appeared in hogs, butter, eggs and several other food products. This may be a reflection of the change from warm to cold weather, but in view of the fact hog prices were the forerunner of a general advance in commodity prices last summer, the current turn may well bear watching.

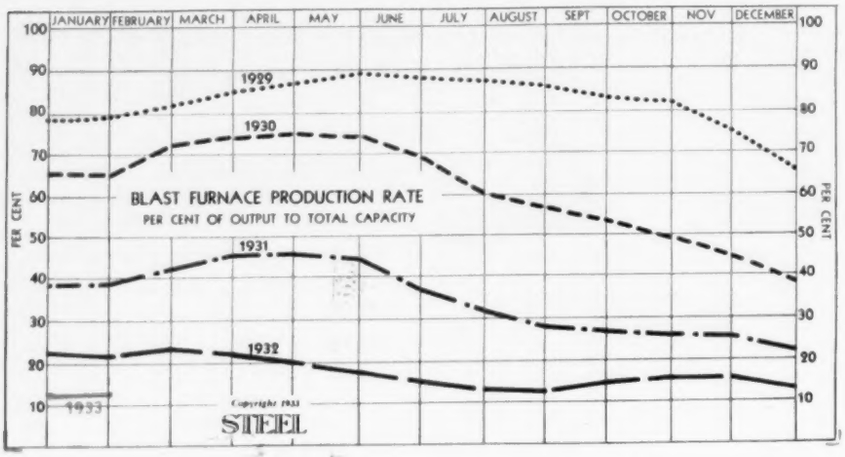


1933
Jan. 38,704

1932
Dec. 32,485
Nov. 39,031

1932
Jan. 56,133

1931
Dec. 50,047
Nov. 63,666



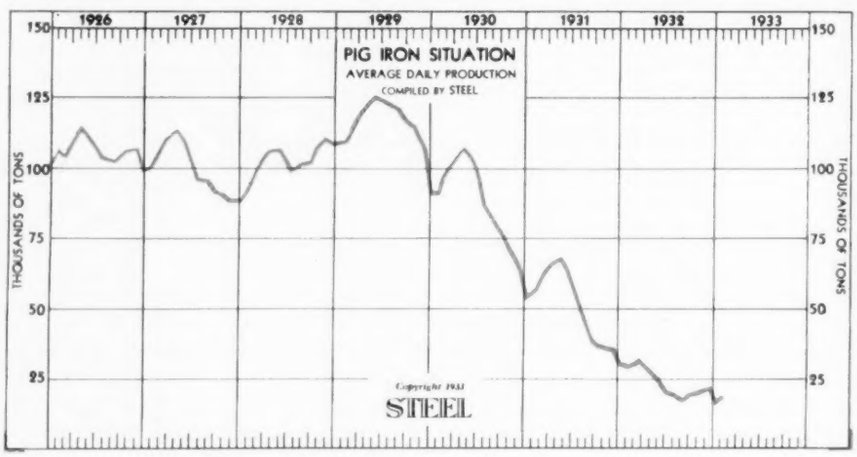
January, 1933	13.0
December, 1932	12.5
January, 1932	22.1

Blast Furnace Activity Up As Three Stacks Resume

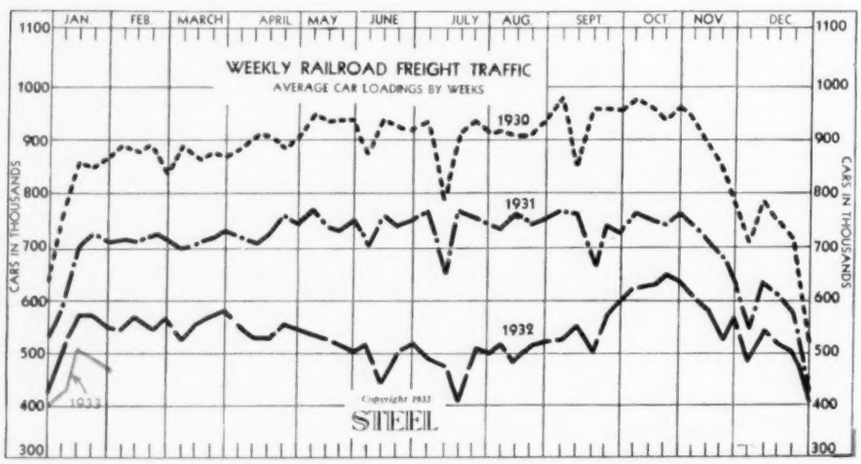
With pig iron showing a slight upward trend, 3 blast furnaces were added to the active list in January. Relating production to capacity, the operating rate for January was 13.0 per cent, moving up one-half point from the 12.5 per cent rate of December. During January, four furnaces resumed activity and only one went out of blast, making a net gain of three units and on the last day of the month there were 45 blast furnaces in operation.

Pig Iron Production Shows Slight Gain in January

Although the average daily output of coke pig iron moved upward 3.9 per cent in January, nevertheless the month stands as the poorest January since 1894. Average daily production for the month was 18,348 tons, compared with the 17,650-ton rate of December, was a gain of 698 tons per day. In November the daily rate stood at 20,858 tons, while the low point for the year was 17,035 tons in August. In January, 1932, the daily rate was 31,336 tons.



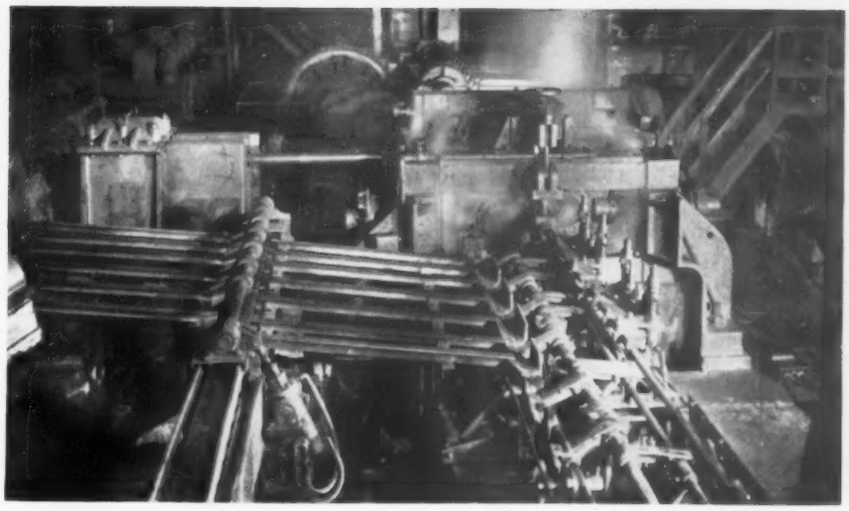
January, 1933	18,348
December, 1932	17,650
January, 1932	31,336



	1933	1932
Jan. 28	472,088	560,343
Jan. 21	496,434	562,101
Jan. 14	506,322	572,649

Car Loadings Decline in Last Week of January

Loading of revenue freight for the week ending Jan. 28 totaled 472,088 cars, according to the car service division of the American Railway association. This was a decrease of 24,346 cars below the preceding week, 88,255 cars under the corresponding week in 1932 and 247,309 cars under the same period in 1931. All districts reported reductions in the total loading of all commodities compared with the same week in 1932 and 1931.



FEED side of the elongator which is built with a pair of grooved guide disks positioned between a set of cross rolls. The latter are driven by a 450-horsepower variable-speed motor

SEAMLESS MILL PRODUCES SMALL-DIAMETER TUBING WITHOUT REHEATING

BY J. D. KNOX
Associate Editor, STEEL

REDUCING the diameter and the wall thickness of seamless tubes simultaneously by cross rolling now is being accomplished for the first time in the history of the seamless tube industry. A new unit capable of performing this dual operation is installed in the Babcock & Wilcox Tube Co.'s plant, Beaver Falls, Pa., the first producer licensed by Diescher Tube Mills Inc., Pittsburgh, to make tubing by its newly developed process.

Conventional methods of hot finishing seamless tubes on an automatic mill are limited commercially to a minimum diameter of about 2 inches and a wall thickness of approximately 10 gage.

But the new mill ignores precedent. A heated tube blank served to the Diescher mill is brought to rest at the discharge end of the elongator in the form of a seamless tube 1⅝ inches outside diameter, with a wall thickness of 14 gage, free from internal scratches and with a concentricity unobtainable by any other hot finishing process. Moreover, by passing the product from the elongator through the recently installed sinking mill, ⅞-inch outside diameter tubes are being made. Thus, from the time the steel leaves the heating furnace in the form of a billet until it is delivered from the sinking mill, no reheating is required.

Furthermore, the observer who for the first time plays his critical eye on the mill layout from the crane cab immediately apprehends another advancement to be credited to this transitory age in which mill designs considered modern today become obsolete tomorrow. For here is a mill that fits into the present-day operating picture, one whose capital investment is so small that no longer will overhead charges eat into surplus like a cancerous sore when market conditions fail to support mass production.

Before describing the Diescher mill and explaining how seamless tubes are produced by this process, a brief consideration of seamless tube production on an automatic mill perhaps will aid the reader to grasp the importance of the new development and to visualize the changing period through which the seamless tube industry is passing.

In making tubes on an automatic mill the tube blank first is centered, that is, one end is countersunk to a depth of about ¾-inch. The blank then is heated to the proper temperature and is pushed with its countersunk end foremost into the piercing mill.

The product of the piercing mill known as a pierced hollow is subjected to a rolling operation for the purpose of reducing the wall thickness and elongating the work. The mill for executing this step is similar to a 2-high nonreversing bar mill. When the tube is pushed into the mill the roll pressure forces it over a mandrel bar on which is mounted a plug which extends into the roll pass from the rear side.

Upon completion of the pass the plug is removed from the nose of the bar, the rolls are separated about an inch, and by means of a pair of pinch or pull-off rolls the tube is returned between the rolls to the front side of

the mill. After a slightly larger plug is placed on the mandrel bar, the tube is given a quarter turn to eliminate any overfills and again sent through the mill. From two to five passes are required to effect the desired reduction in wall thickness.

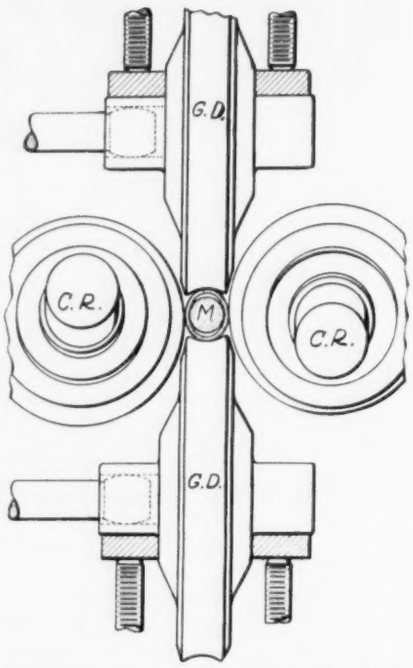
The tube then is subjected to the action of a reeling machine which remedies the out-of-round contour of the tube and smooths the internal and external surfaces. The reeler is equipped with a set of rolls which are made to cross each other by mounting them with their axes askew in opposite directions. The rolls revolving in one direction impart a reeling motion to the tube and force it over a mandrel. Subsequent to reeling, the tube must be brought to uniform diameter and, therefore, is passed through a set of sizing rolls.

Sinking Mill Optional

If a smaller external diameter is desired the tubes must be reheated and passed through a sinking mill. No mandrel is used in this operation. The mill is built with several stands of 2-high grooved rolls with the openings formed by the grooves decreasing in diameter from the first to the last stand. The roll housings are inclined alternately to the left and right 45 degrees with the vertical.

After the tube is reheated, it is pushed into the sinking mill and is elongated and reduced to the outside diameter desired, depending upon the number of roll stands in the train. The minimum diameter made on sinking mills in this country is about 1 15/16 inches. Any further reduction is effected by cold drawing.

Tubemaking using an automatic mill, therefore, involves at least heating the blank, piercing, rolling, reeling, and sizing, a total of five operations. With the Diescher process, on the other hand, only three steps are required—heating, piercing and elongating.



Elevation of the elongator looking in direction of the feed of the blank. Mandrel and blank are depicted in transverse section at the throat of pass. GD designates the guide disks; CR, the cross rolls; and M, the mandrel

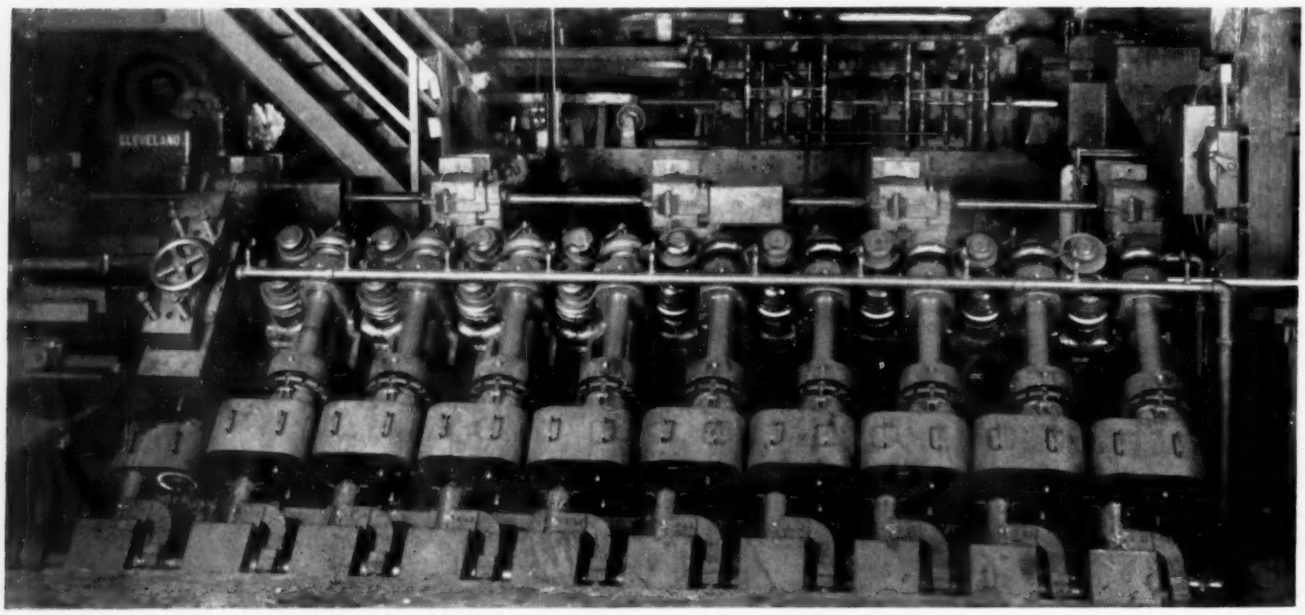
The blank is heated and then passed through the piercing mill. The piercing unit supplying pierced hollows to the new mill at Beaver Falls is designed to take 2½-inch billets which are to be reduced to tubes 2¼ inches and smaller.

Tubes from the piercing mill are transferred by gravity across a rail-type table and are brought to rest in a trough. A mandrel bar is pushed through the pierced hollow until the forward end of the bar protrudes. Then the piece is transferred broadside into an adjacent trough which serves as the approach table of the elongating mill. A pair of pinch rolls advances the work into the bite of the cross rolls which take hold immediately and impart a reeling motion to the bar and the piece as they advance through the mill.

The elongator, the crux of the mill layout, is built with a set of barrel-shaped cross rolls arranged with their axes inclined to each other and to the path of travel taken by the tube while in transit through the machine. The wall thickness is reduced by the action of the cross rolls which not only causes a peripheral and, to some extent, a longitudinal flow of metal, but also causes the blank to bulge laterally from the mandrel, assume an elliptical form and make contact with a pair of 2-high grooved rotating driven guide disks arranged between the cross rolls. When engagement with the disks is made, no further bulging of the work is possible.

Friction, Wear Minimized

The grooved guide disks rotate longitudinally with the tube at a speed faster than the forward movement of the tube. By maintaining a suitable speed relationship between the peripheral speed of the guide rolls and the rotating blank, crosswise friction is eliminated, wear on the grooves of the guide disks is minimized, and the tendency of the disks to tear the metal is obviated. The cross rolls are machined so that their surfaces flare outwardly from the neck of the pass. By this ar-



In the foreground is the 20-stand sinking mill; at the right, back of the column is the elongator; and, in the left background is the piercing mill

rangement, the elliptical contour of the tube is converted into a cylindrical cross section of any desired wall thickness and diameter.

Tubes leave the elongating mill with a wall thickness which conforms to the setting of the cross rolls, and with an exterior diameter determined by the setting of the grooved guide rolls. Mechanical fingers lift the tube and mandrel from the runout trough and deposit them on a rail-type transfer table. The tube and mandrel are moved across this table to another trough which advances them to a pair of stripper rolls.

Tube Slides Off Mandrel

Here the end of the mandrel bar passes through an opening in a plate mounted in the path of travel and thence into the gap of the rolls. As the bar and tube progress the tube comes in contact with the plate which arrests its movement and the bar continues its advancement toward the front of the mill to be used again. The tube, now free of the mandrel, passes to the sinking mill composed of 20 stands of two rolls each where it is reduced to the desired diameter with its length proportionally increased.

Hot finished tubes made in this manner are accurate both as to diameter and wall thickness; moreover, they retain full cross section to within but a short distance from their ends and consequently involve but little crop loss and, in addition to these features are smooth both inside and outside. The product is free from scratches, which form a lodging place for scale, thereby hastening corrosion and shortening the life of small tubes, whether of carbon or alloy steel.

Although these accomplishments alone constitute a real advance in seamless tubemaking, this achievement is nevertheless greatly enhanced by the rapidity and the ease with which the tubes are made and the comparatively simple processing involved in their making.

New Photographic Plate For Metallographers

A new photographic plate designed especially for photomicrography of metal specimens is announced by the Eastman Kodak Co., Rochester, N. Y. In addition to having properties which render it particularly suitable for metallography, it should appeal to those photomicrographers who prefer not to use panchromatic plates, such as the Wratten "M" plate, which require handling in the dark.

Research laboratories of the Eastman company recently have produced a large number of new photographic sensitizing dyes, one of which is particularly satisfactory for sensitizing plates to be used in metallography. It is plates thus sensitized that are now being introduced under the name of Wratten metallographic plates.

The characteristics of these plates which render them specially useful for metallography are: High resolving power, permitting the best reproduction of fine detail; availability of a high photographic contrast, for such subjects as steels at high magnification; availability of lower contrasts, yielding good negatives where there is high contrast in the image, as with steels at low magnifications, cast irons, etc.; high green sensitivity as well as high sensitivity to blue light, which gives the plates maximum usefulness when used either with achromatic objectives and green filters or with apochromats; and absence of sensitivity to red light, with the resulting freedom in darkroom handling. The plates can be handled in the normal red light of a Wratten series 2 safelight.

Annual Meeting of Gray Iron Institute in March

The Gray Iron institute will conduct its annual meeting in Cleveland, March 22, at Hotel Cleveland, according to Arthur J. Tuscany, manager.

The morning session will be devoted to reports of officers, reports on activities and election of directors. An outstanding business leader will address a group luncheon at noon.

A conference-type of session is arranged for the afternoon at which will be discussed various activities of the institute. All important committees have been working for several months completing certain items of procedure, and these will be outlined in detail.

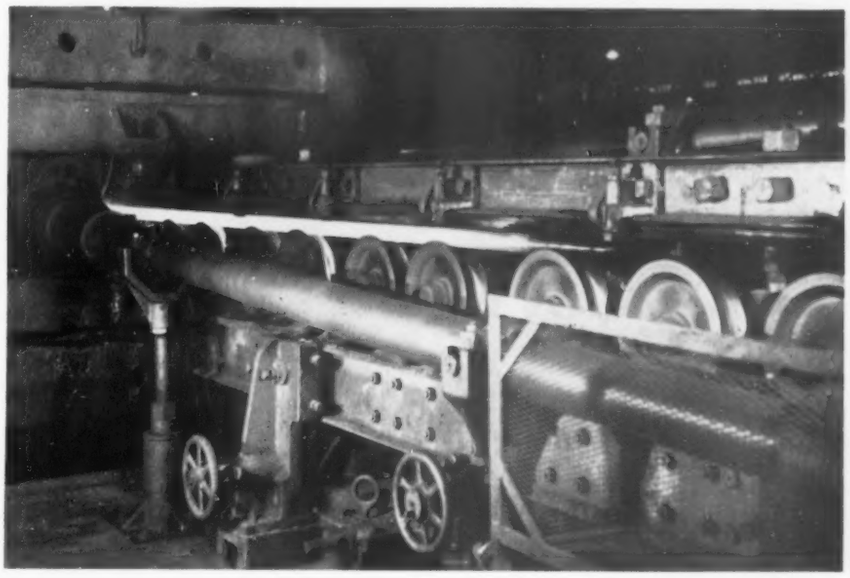
Will Issue Weekly Reports On Power Transmission

Culminating a long period of engineering work, the American Leather Belting association, 41 Park Row, New York, is about to issue a series of 50 weekly reports entitled "Mechanical Power Transmission from Motor Drive to Industry," by Robert W. Drake, electrical engineer.

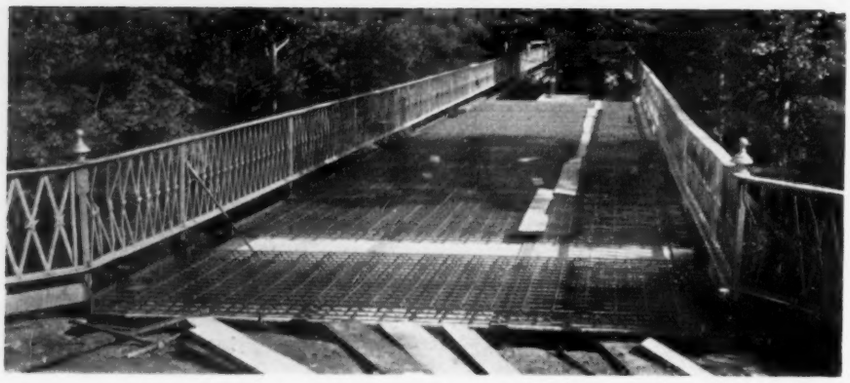
These reports will cover the transmission of mechanical power from electric motor to driven load by belting and by other means. The problem is considered from the standpoint of design, maintenance, comparative production and comparative costs, within a wide range of conditions and applications.

The material is written for millwrights, maintenance men and executives in plants and for those engaged in the distribution of mechanical and electrical power transmission equipment. There is said to be no other reference work of this kind available. The series will be sold in a subscription limited edition by the association.

In addition to the weekly reports, monthly school-type meetings are being held with Mr. Drake in New York, Chicago, Boston and Philadelphia, Feb. 9-17. From 50 to 145 users and distributors are attending each of these meetings. Further groups now are in process of organization in Buffalo, Atlanta, Houston, Memphis, Toronto, and many other cities.



Rear side of elongator mill showing a seamless tube being delivered. The mandrel bar is shown protruding from the forward end of the tube



This old bridge built in Chester County, Pennsylvania, in 1887 is being reconstructed to make it modern. The welded deck reinforcement is shown partially in place

Wrought Iron Bridge 45 Years Old Rehabilitated by Steel and Welding

IN THE rebuilding of old bridges for the carrying of modern loads, electric arc welding is playing an important part in the program of the commissioners of Chester County, Pa. One of these bridges, Laurel Bridge No. 54, was first erected in 1887.

This bridge, a viaduct type, constructed of wrought iron, has given good service for the past 45 years, but being originally built for 2-ton capacity, it was not heavy enough to carry the load demanded by modern traffic. The entire structure was redesigned, utilizing welding as the means for making all new connections. The rebuilt bridge, when completed, will carry loads up to 15 tons.

Reinforced Throughout

The deck of the bridge is approximately 16 feet wide by 264 feet long. All of the floor beams and girders were strengthened by means of cover plates and stiffeners welded to the old members. The old floor beams were dropped to take new stringers of larger dimensions. All connections were welded. Four-inch wooden floor planks are being replaced by a 6-inch reinforced concrete deck. Resistance welded reinforcing beams were used for the deck construction. These beams were, in turn, arc welded to the supporting structure.

Repairs to the bridge required about 36 tons of new steel and the welding amounted to approximately 55,500 lineal inches. Four gas-engine driven arc welding generators built by the General Electric Co., Schenectady, N. Y., were employed in the welding work, the bulk of which was done with the company's type R welding electrode.

The structure was redesigned by County Engineer Harry K. Ellis with the assistance of the county's consulting engineer, Stacy H. Widdecombe and Carson & Carson, Philadelphia. The repairs are being made by Charles H. Dunleavy of Coatesville, Pa., and the welding by Mellon, Taylor, and Hendrickson Inc., of Philadelphia.

Granted Canadian Patent

Wean Engineering Co. Inc., Warren, O., has been granted Canadian letters patent No. 329,901, covering improvements in methods and apparatus in manufacturing sheets, and the like. This method involves the use of continuous furnaces as well as automatic feeding and catching tables.

Completes Fourth Report on Ingot Characteristics

Experimental work on the heterogeneity of steel ingots carried out during the past three years by a joint committee of the Iron and Steel institute and the National Federation of Iron and Steel Manufacturers, London, discloses that the presence of nonmetallic particles and ghosts in the ingot largely is governed by the principles of manufacture, melting and refining, the condition of the finished slag at tapping and the manner of additions of the deoxidants.

The program illustrates the effect of the temperature of the mold, the size of the nozzle, the rate of pouring and the choice of deoxidants upon the heterogeneity of the ingot. The position now is reached at which it is possible to control with a certain degree of precision the segregation associated with steel ingot practice in its present stage of development.

The results of the committee's study are embodied in a report, the fourth to be published, entitled "Heterogeneity of Steel Ingots." The report includes 204 pages, 42 illustrations and a 12-page bibliography of papers dealing with steel ingots and is available at the offices of the Iron and Steel institute, 28 Victoria street, London, S. W. 1.

VIEW from above Laurel bridge No. 54 showing electric arc welding details of reconstruction. As originally built, the span had a capacity of 2 tons; when repairs are completed, it will carry loads up to 15 tons

Courtesy of Cleveland Steel Products Corp., Cleveland, O.

OPERATION: MILLING THREAD ON 1 9/16 IN. SPLINE SHAFT, 20 THREADS
MACHINE: LEES-BRADNER THREAD MILLER.
MATERIAL: S. A. E. 3135 STEEL
CUTTER: 3 IN. R. P. M. 156.
PRODUCTION: 30 PIECES PER HOUR
LUBRICANT: 1 PART SUNOCO TO 15 PARTS WATER

Courtesy of Cincinnati Grinders, Inc., Cincinnati, O.

OPERATION: ROUGH AND SEMI-FINISH GRIND ON GRINDING WHEEL SPINDLE.
MACHINE: 14 IN. BY 48 IN. CINCINNATI PLAIN SELF-CONTAINED GRINDER.
MATERIAL: S. A. E. 3145 STEEL.
STOCK REMOVAL: .030 INCH.
LIMITS: PLUS, .0000 INCH. MINUS, .0002 INCH.
TIME PER PIECE: 35 MINUTES.
COOLANT: 1 PART SUNOCO TO 40 PARTS WATER.

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NEW BOOKS WORTH READING

SCIENCE ◆ ECONOMICS ◆ BUSINESS

Control and Measurement Of Temperature, Humidity

Handbook of Industrial Temperature and Humidity Measurements and Control, by M. F. Behar; cloth, 320 pages, 6 x 9¼ inches; published by the Instruments Publishing Co., and supplied by STEEL, Cleveland, for $4.00 plus 15 cents postage, and in Europe by the Penton Publishing Co. Ltd., Caxton House, Westminster, London.

This volume contains part two on temperature measurement and control and part three on humidity measurement and control of the *Manual of Instrumentation*, which the author undertook several years ago. Due to the practical importance of heat control in the iron and steel industry, this manual should serve as a guide in the solution of numerous production problems.

Part two on temperature measurement and control is devoted to a general discussion of temperature, and in formation on indicating thermometers, thermoelectric pyrometers, radiation and optical pyrometers, pyrometric cones, etc., temperature recorders, automatic temperature control, temperature control instruments and accessories. Part three on humidity measurement and control is devoted to a general discussion of humidity and information on humidity measurements, humidity and aerological measuring instruments, and automatic control of humidity.

◆

Airplane View of American Industry by Men Who Know

The Development of American Industries, by John George Glover and William Bouck Cornell; cloth, 932 pages, 6 x 9 inches; published by Prentice-Hall Inc., New York; supplied by STEEL, Cleveland, for $6, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

To write a history of the development of American industries would be a task too great for any one mind, so complex and involved has become the warp and woof of its far-reaching fabric and so involved its ramifications. To produce this work, to give an exact and authoritative view of the wonderful progress made in the past century or more, the authors have gathered from men specializing in each of 39 important branches of industry first-hand accounts of the development of each branch and welded them into a single volume.

It covers the fundamental industries of agriculture, fisheries, lumbering, mining and others, to the finishing industries, including machine tools, glassmaking, electricity, automotive industry, telegraph, telephone and radio, hotels, banking and trade associations. This does not exhaust the list, but shows its breadth of scope. With each treated by an author immersed deeply in its history and practice the composite result is a mosaic of the industrial world, picturing its beginnings, its growth and its present status.

By study of the movement from small to great and its effects on social institutions it is possible to envisage to some degree the revolution through which society has been passing and in which it is at present struggling to attain a firmer foothold and make the best possible use of the gifts industry has to offer when fuller knowledge shows the best way of using them.

It is a great service that such an authentic collection of data has been brought together for study and reference and its value will grow with the years. It was issued on the occasion of the hundredth anniversary of New York university, of the faculty of which its two editors are members.

◆

Fundamentals of Machine Tool Works Explained

Machine Tool Works, by William P. Turner; cloth, 424 pages, 6 x 9 inches; published by McGraw-Hill Book Co. Inc., New York; supplied by STEEL, Cleveland, for $3, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

Brief outlines of lectures and instructions for solving the various problems presented in the machine tool department of Purdue university has grown into this volume, which represents the latest development of the course at that school.

It proceeds in a systematic way to instruct in the fundamental principles of machine tool work, to the end that the student will discover and understand the basic principles on which the present highly specialized art of machine tool work is founded.

The volume is essentialy a textbook. A schedule of operations is provided, showing machines and tools to be used, and then details of the operation are given. At each chapter end questions are provided to test the grasp of the student.

◆

How Metals are Formed In Power Press Work

Plastic Working of Metals and Power-press Operations, by E. V. Crane; cloth, 326 pages, 6 x 9 inches; published by John Wiley & Sons Inc., New York; supplied by STEEL, Cleveland, for $4, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

Mass production by means of the power press forms the text of this volume. The effort is to sort out the many metal-working operations into similar groups, study their common characteristics and establish as complete a working theory as is possible for figuring operations and predicting their results. This leads back to the structure and change in structure of the metal being worked. This leads to a study of the properties of metals in their plastic range and development of theoretical data results, as most studies of metals have been below their elastic limits.

Numerous illustrations of presses and of parts made in them, diagrams of operations and tables of data supplement the text.

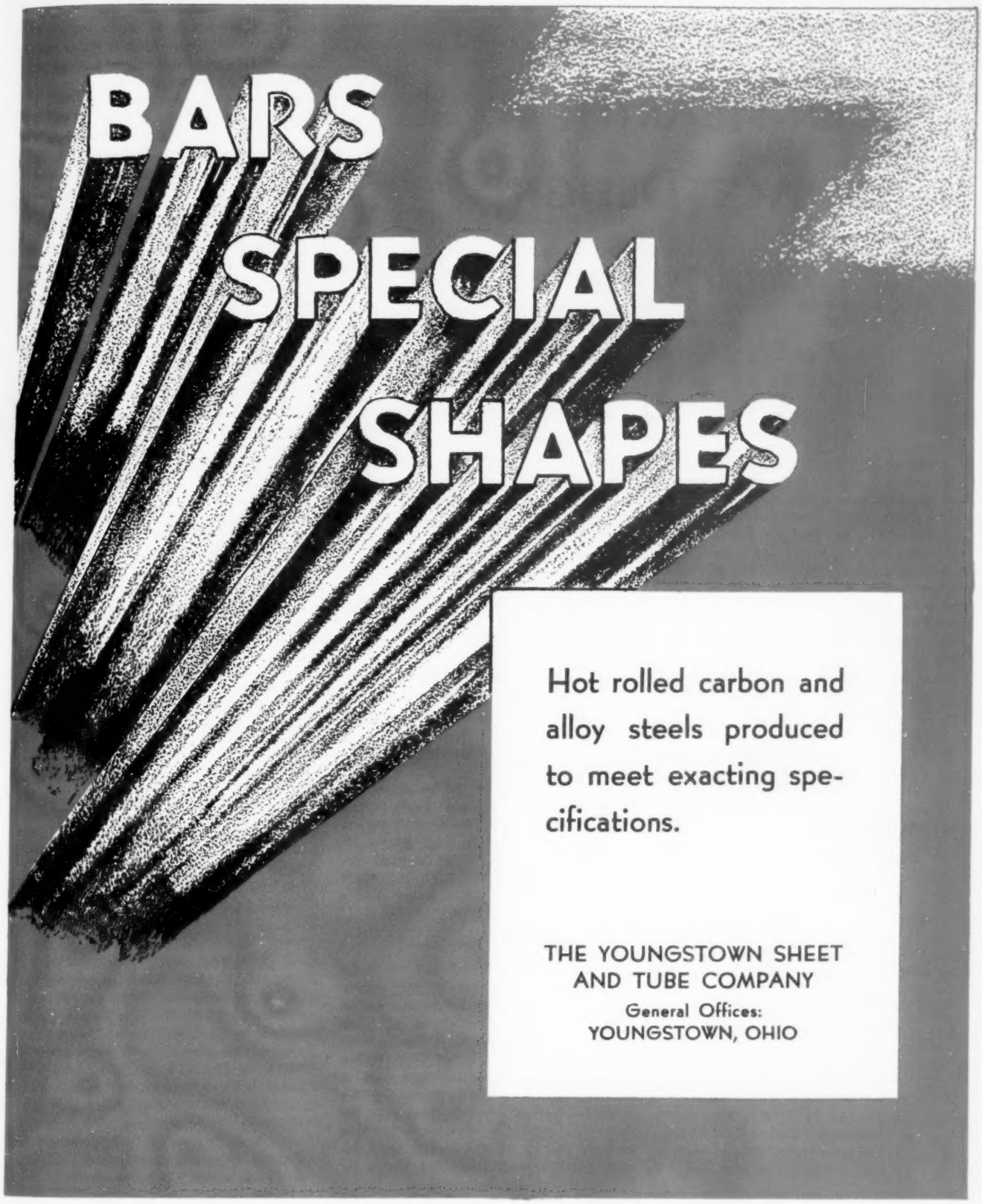
◆

League of Nations Gives Statistics of World

Statistical Yearbook of the League of Nations, 1931-32, cloth, 342 pages, 7½ x 9¾ inches; published by the League of Nations, Geneva, Switzerland; supplied by STEEL, Cleveland, for $3, plus 15 cents for postage.

In parallel columns the data in this book are presented in French and English. Its object is to give an international synopsis of available statistics relating to the most important economic, financial, demographic and social phenomena. The present edition is able to present its information in a more up-to-date way than formerly. A number of new tables have been added, covering subjects formerly not available. Sources are indicated in footnotes to aid the reader in evaluating.

A mass of information thus is rendered available for those desiring to investigate the situation of the world in detail as represented in figures.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BY WILLIAM C. BUELL JR.

Part IV—Mechanics of the Roof

(Nineteenth Article of Series)

UNIT weight (items g and o as developed from Fig. 28) represents those parts of the total roof weights that affect the skewback, horizontally or vertically. Those and the following items are for 3 feet of skewback length representing a full section of roof brick including a rib. The unit reaction, item h, is calculated from the developed value of *HF* in accordance with the principles of Equation 8.

The horizontal thrust, *HF*, item i, is developed through the use of Equation 7 and is the value for 3 feet of skewback.

The total loading of the skewback, item j, is secured by multiplying *HF* by 8.75 feet, the total length of the skewback and dividing by 3 feet, the unit length.

Usual Methods Employed

The maximum moment in the skewback is found by the usual methods. The skewback is considered as a beam, uniformly loaded, and with both ends overhanging the supports. The common equation is:

$$M_{max} = \frac{W(l - 2a)}{8} \quad \ldots\ldots\ldots\ldots\ 21$$

in which:

M_{max} = Maximum moment in inch-pounds.
W = Total weight reacting.
l = Length in inches between supports, taken as 74 inches.
a = Length of overhang at each end, taken as 15½ inches.

The section moduli of items l, m, u and v, are based on the extreme fiber stress values of 7000 pounds for cast and 9000 pounds for rolled steel.

The weight of the skewback brick, p, are estimated from Fig. 35, and that of the skewback, item q, from designs later devloped.

Total loading, item r, is the sumation of items n to q and is for the usual 3 feet of length, and the total loading, item s, is the foregoing figure adjusted to 8.75 feet of skewback length.

The maximum moment item, t, is developed by the use of Equation 21, but in this case, l, is considered as 79 inches and, a, is 13 inches.

The principal value of the data of Table XLV is their use for the determination of the maximum moments of the horizontal and vertical reactions and through the selection of values of fiber stress, the development of corresponding moduli, by the use of which it thus becomes possible to select steel sections for the skewbacks that will be sufficiently rigid to restrain the roof.

The most desirable section shape for skewbacks, either front or back, is the channel section. The largest rolled channel listed by the steel manufacturers is an 18 inch, 58 pound section. This section has section moduli of 74.5 and 5.6 on the $x - x$ and $y - y$ axes, respectively.

Loading Is Considered

All horizontal roof thrust must be taken on the $y - y$ axis and, consequently, the value of 5.6 is that to be here considered. Inspection of item m, Table XLV shows that the lightest loading, the front wall of the 100-ton furnace calls for a section with a modulus of 13.91, thus indicating the largest channel manufactured to be much too weak for the purpose. The section moduli of the much used 15-inch 55-pound channel are given as 57.2 and 4.1 respectively.

Other methods of developing sections that will meet the requirements also are available.

Probably, the most satisfactory arrangement will be channels of cast steel, especially since the necessary lugs for supporting these members may be cast on the flanges which generally are drilled and weakened when rolled sections are used. If cast-steel channels are used they must be made in strict accordance with A. S. T. M. specifications for castings used in similar service. Another possible method of developing heavy channel sections is to remove the flanges on one side of heavy beam sections, such as the 18 or 22-inch Bethlehem girder beams or 18 or 21-inch Carnegie beams.

The principal dimension and functions of several sections are presented for comparison in Table XLVI. Two general interior heights, h, have been selected, the shorter being correct to take up to a 15-inch roof brick, the longer up to a 24-inch roof brick. Types A and C have the inner surface of the flanges at right angles to the web surface and are preferred as this design presents a better bearing for the skewback brick.

The cast sections are much heavier than the rolled sections, but if compared on a cost of the section modulus on the $y - y$ axis, which is the function sought, it will be shown, Table XLVI, that the cost of all sections is similar.

Requirements Are Analyzed

Item l of Table XLV indicates that if cast-steel channels are used the minimum section moduli should be 17.89, 29.3 and 36.69 for the 100, 150 and 350-ton furnaces, respectively. Comparison of these items with the appropriate data of Table XLVI would indicate that the 21-inch 192-pound cast channel with its section modulus of 15.35 probably would be satisfactory in use with the 100-ton furnace but that the 24-inch 158-pound section with section modulus = 36.7 should be used with the 150-ton furnace and the 24-inch 213-pound section modulus = 37.45 with the 350-ton furnace. Lighter roofs than these specified would modify considerably the requirements in these respects.

Consider next item m of Table XLV which shows the minimum section moduli required in the rolled sections as 13.91, 22.8 and 28.53 for the 100, 150 and 350-ton furnaces, respectively. Comparison of these requirments, with the properties as found in the selected rolled section of Table XLVI and which give a maximum value of 18.90 in the 21-inch 104-pound "C" beam indicate conclusively that while simple rolled sections have sufficient strength to be correctly included in such a design as is indicated for the 100-ton furnace, reinforcing of rolled sections must be accomplished in a proper degree for the development of sufficient strength where furnaces larger than 100 tons are to be designed.

The ample reinforcing of any of the sections used in the back wall is secured easily by the addition of a small I-beam but as mentioned before the proper reinforcing of the front wall skewback is difficult of accomplishment. Any of the sections list-

ed in Table XLVI are of more than ample capacity to properly carry the vertical loadings of items s.

The outstanding factor in this respect is that any section with sufficient section modulus on the $y - y$ axis to restrain the horizontal roof thrust will inherently show a section modulus on the $x - x$ axis of ample capacity to support the vertical loadings.

How Skewback Is Supported

Three general methods are available for installing skewbacks, namely fast skewbacks, floating skewbacks, and suspended skewbacks. The first method, in which the skewbacks are fastened rigidly to the buckstays and thus become integral with the furnace binding scheme now virtually is obsolete and the inclusion of such a method in modern design is untenable for several reasons which will be obvious upon investigating such a design.

The second method, floating skewbacks is often found in existing furnaces and appears to be practiced in furnaces units designated A, B, E, F, G, I, K, N and O, Fig. 21. In this design the skewback is laid loosely atop the front and back walls and is free to move upward or downward as expansion in the walls may cause them to rise and the downward forces from the roof, to fall. With this type, the weight of the arch is supported downward through the front and back walls directly on the bottom steel and the buckstays, therefore, are obliged to absorb only the horizontal roof thrust. While many excellent furnaces are built to include this method it has the disadvantage, particularly in rebuilding, that if a sizeable portion of a wall is to be removed, the roof, even if it remains in place, is subject to at least slight movement which tends to weaken it.

Third Method Is Favored

The most modern design appears to favor the third method, suspended skewbacks, in which the skewbacks are suspended by suitable rods from the framing steel at the top of the buckstays. This method, therefore, necessitates that the buckstays act as columns in supporting the weight of the roof and skew system, and as beams in restraining the horizontal roof thrust.

The design has a number of important advantages, among which are, the ability to construct the roof before and without reference to the walls thus bringing the roof lines to those established by the designer and constructing the tops of the walls to conform; the ability to change roof lines to some extent after installation; the ability to replace sections of front or back walls without damage to the roof or skews; the removal of the weight of the roof from the walls and its transfer directly to the outer girder system through the buckstays which are inherently amply rugged to take this added loading. Furnaces C, D, H, J, L and M in Fig. 21 incorporate this advanced design.

(To be Continued)

Arrange Conference on Planning for Manufacture

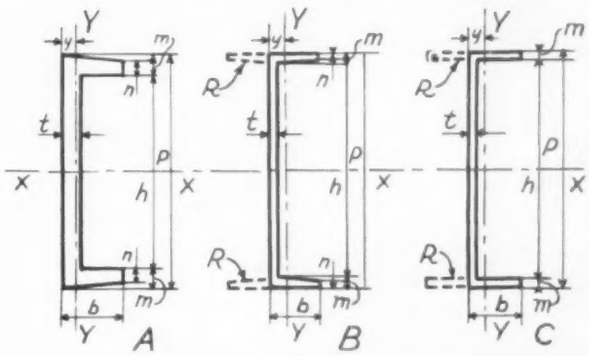
A conference devoted to "Re-Engineering for Economical Manufacture" is to be conducted March 22-24 at Case School of Applied Science under joint sponsorship of the school and the Cleveland Engineering society, with representatives of a number of national engineering societies co-operating. E. S. Ault, associate professor of mechanical engineering, is general chairman of the conference.

Following an opening address on "Planning for Profits" by John M. Carmody, editor *Factory and Industrial Management*, New York, on open forum will be maintained.

Among subjects for discussion are the following: Production development, the economic aspect of entering competition in another industry, redesign of product to increase appeal, economical selection of equipment, improved manufacturing processes, metal forming to eliminate machining, the place for stampings in the product, influence of welding on design and production, changes in plant layout to accommodate varying production, selection of economic manufacturing quantities for the small industry, and general factors entering a production program.

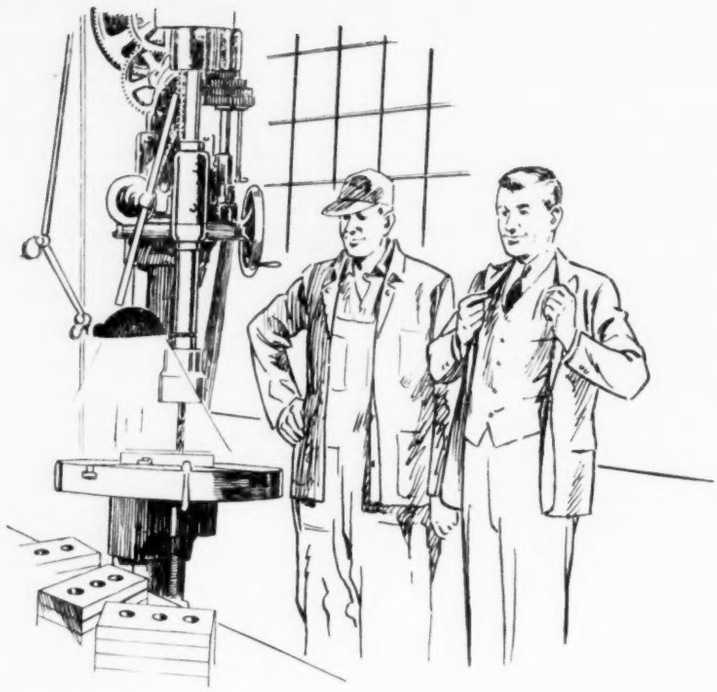
Table XLVI

Channel Sections for Skewbacks and Their Properties



Type			A	A	A	A	B	B	C	C
Material			Steel Castings				Rolled Steel			
Depth-d, Inches			21	21	24	24	18	22	18	21
Area, Sq. Inches			42.75	57.75	47.25	63.75	16.64	21.22	16.51	20.21
Wt. per ft. lbs.			143 lbs.	192 lbs.	158 lbs.	213 lbs.	86 lbs.①	108 lbs.①	86 lbs.①	104 lbs.①
b, Inches			6	6½	6	6½	6.10	6.75	6.215	6.732
t, Inches			1½	2	1½	2	0.440	0.480	0.429	0.465
h, Inches			18	17	21	20	16.01	19.798	16.5	19.3125
m, Inches			1½	2	1½	2	0.995	1.101	0.745	0.815
n, Inches			1	1½	1	1½	0.524	0.579	—	—
b-t, Inches			4½	4½	4½	4½	5.66	6.27	5.786	6.267
Axes	X-X	I	2619	3688	3333	4708	897	2208	855	1399
		S	249.4	307.33	317.5	39233	99.66	110.73	95.1	133.2
	Y-Y	I	61.3	67.4	175.5	181.5	51.39	84.71	63.33	90.83
		S	14.33	15.35	36.7	37.45	12.60	16.69	14.46	18.90
		y	1.70"	1.61"	1.722"	1.65"	1.548"	1.678"	1.834"	1.930"
Cost per Foot										
			$4.30	$5.75	$4.75	$6.40	$3.68	$4.25	$3.68	$4.16
Cost per Foot per S on Y-Y Axis										
			$0.30	$0.375	$0.13	$0.17	$0.3275	$0.255	$0.255	$0.22

① These are the weights as rolled



Tools have got to be good to keep their jobs today

In today's rigid program of economy and efficiency there is no place for tools that delay production.

MORSE tools are holding their jobs and gaining new recognition right now for their ability to keep production speed up where it belongs and production cost down where it belongs.

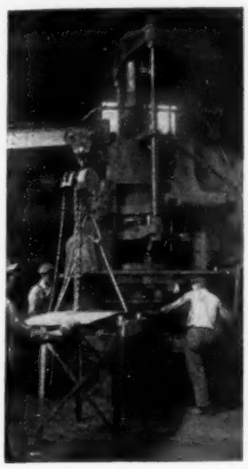
MORSE

TWIST DRILL & MACHINE COMPANY
NEW BEDFORD, MASS., U.S.A.

THE MORSE LINE INCLUDES: High Speed and Carbon

DRILLS REAMERS CUTTERS TAPS AND DIES SCREW PLATES ARBORS
CHUCKS COUNTERBORES MANDRELS TAPER PINS SOCKETS SLEEVES

Making the Most of



METHODS AND MATERIALS

FOR many years, 12 per cent manganese steel has been used for mechanical parts subject to excessive wear and abrasion. This is a good steel and for certain uses it has shown from 4 to 20 times the life of plain carbon steel. It has been successfully used for shovel teeth, caterpillar treads, wearing plates, crusher jaws, gyratory crusher parts, hammer and swing-type crushers, railway crossings, frogs and switches. One of the objections to manganese steel is its low yield point which, under certain conditions, causes it to flow and upset in service. This difficulty has been partly overcome by the addition of small percentages of chromium and in some cases chromium and copper have been added.

$ $ $

With the installation of an electrical barrel welder, a Midwest manufacturer has speeded up his production of steel barrels used widely for paints, oils and greases and thereby has effected considerable economy. The saving brought about by this apparatus is evident from a comparison of the time needed for welding a barrel by electricity and with non-electrical equipment. The electric welder completes the operation in 30 seconds; the previous equipment required 7 minutes for the same work.

$ $ $

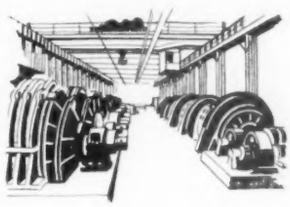
FOR some forging dies, nitrided steel has shown remarkable service. An instance has been cited of a nitrided die placed in service in the production of a small forging. The cost was 26 per cent greater than for a plain carbon steel die, but the unit cost of production per forging was 1.04 cents for the carbon steel die and only 0.42 cent for the nitrided die, this representing a cost saving of well over 50 per cent.

$ $ $

A stove maker suddenly developed an epidemic of warped stove fronts made from gray cast iron and porcelain enameled. An investigation revealed that no change had been made in the design of the parts nor had any apparent change been made in the method of manufacture. Closer study, however, revealed that a change in the pouring schedule had been effected and these particular parts were being shaken out of the sand too soon after pouring. This set up strains in the castings which were relieved in the enameling operation with bad warping effects.

$ $ $

Motors with a total capacity of 1400 horsepower were used in a plant to drive dust-removal fans. The fans were equipped with blast gates,



but these were not used. By closing the gates on ducts not used and slowing down the fans on ducts in use, a saving of $700 monthly was accomplished.

$ $ $

A worm, which is part of the conveying machinery in a rubber mill, is subject to slow abrasion and when worn beyond a certain point, the part must be replaced unless the edges can be built up. A typical conveyor screw used in this service is 6 inches in diameter and costs approximately $75, exclusive of the cost of labor for replacement. The edges of this worm were worn down fully ¾ inch and were built up by oxyacetylene welding. The total cost, including the labor required to remove the worm and replace it after welding, was approximately $10. It was necessary to machine this part because tightness in the sleeve is not essential. In addition to the low cost of repair by building up with the blowpipe, this operation reduced the total necessary shutdown of the unit to less than half a day.

$ $ $

Preparation of the exposed surfaces is important in influencing resistance to the salt spray. A highly polished surface is most resistant. Of a number of iron-chromium alloys tested recently, polished specimens containing 17 per cent or more chromium were immune to attack after 100 hours of continuous exposure. Alloys containing approximately 13 per cent chromium were attacked only in three instances and the degree of attack was slight.

$ $ $

A MANUFACTURER of hydraulic bumpers for use on airplanes is providing the cylinders of these bumpers with chromium plating 0.0015-inch thick. Tests equivalent to 20 years of actual use show that the plated cylinders do not corrode and reflect negligible wear.

$ $ $

A prominent midwestern railroad reports a saving of $200 on each crankshaft which is now ground on a modern cylindrical grinder; the line and pin bearings formerly were machined on a lathe. In addition, of course, the bearings are more accurate in size and alignment.

$ $ $

A newly developed process for producing thin economical metal coatings for protection against corrosion is claimed to provide an inseparable bond capable of withstanding vibrations, mechanical shocks, and changes of pressure and temperature close to the melting point of the coating itself. It can be used not only where lead proves serviceable, but also where protection against hydrochloric acid in various concentration is required. Steel shells, 4 to 16 feet long, coated with approximately 0.003 inch of metal have been in service for over a year. Coverings in excess of 0.0625 inch can be applied by a somewhat different process. These coatings are adapted to such equipment as steel barrels, drums, sheets, piping and tubes.

SCANNING THE FIELD OF TECHNOLOGY

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Cutting Tool Developments

By Dr. Zay Jeffries and W. P. Sykes, in Metal Progress, February, p. 29, 7 pp., 5 ills., 6 charts.

Citing the progressive development of high-speed steel, stellite, tungsten and tantalum carbides, and the most recent alloy 548 (see STEEL, Jan. 23, p. 19). This new cutting material is a ternary alloy of iron, tungsten and cobalt. Laboratory tests seem to indicate that the alloy has qualities midway between high-speed steel and cemented tungsten carbide—a field where many tool experts have said a gap now exists. Alloy 548 functions best as a carbon-free alloy, or at best with little carbon. Its hardness is not inherent, as cast, but is developed by quenching and aging. It can be melted, cast, forged, or rolled, then machined and heat treated for use.

—STEEL, 2-13-33

Oxide Analysis

By J. J. Egan, W. Crafts and A. B. Kinzel, a paper to be presented at the annual meeting of the American Institute of Mining and Metallurgical Engineers in New York, Feb. 20-23, preprint No. 498, 10 pp., 2 ills.

Greater demand for knowledge of the amount and distribution of oxygen in steel has required perfection of analytical methods. This paper reports upon an investigation of the iodine extraction method of oxide analysis, comparing results on a number of heats with determinations made by the alumina method. The iodine method checks accurately with the alumina method on plain carbon and manganese steels. Practicability and ease of application of the method make it an admirable tool for the use of the steelmaker.

—STEEL, 2-13-33

18-8 Pressure Castings

By S. R. Robinson, in the Foundry December 1932, p. 25, 1½ pp., 1 ill.

Outlining methods of molding, coremaking and gating used in the production of valve bodies of cast 18-8 corrosion-resisting steel.

—STEEL, 2-13-33

Gas Welding

By H. H. Lurie, report of an investigation conducted by the engineering experiment station of Purdue university, Lafayette, Ind., in Engineering Bulletin of the university, July 1932, 114 pp., 92 ills., 20 tables, bibliography.

Study of welding with manufactured, natural and mixed (coke oven and natural) gases. It was found that cast iron could be welded easily with oxycity gas; steel could be welded similarly, but the economic range from the standpoint of labor cost was in thicknesses of ⅛-inch and less.

—STEEL, 2-13-33

107 Years of Steelmaking

By Charles Longnecker, in Blast Furnace and Steel Plant, January, p. 53, 8 pp., 7 ills.

Established in 1826, the Alan Wood Steel Co., Conshohocken, Pa., is one of the oldest manufacturers of iron and steel in this country. This article carefully traces the history of this producer, giving complete description of present steelmaking facilities and mill equipment.

—STEEL, 2-13-33

Polishing Cast Iron

By Richard Schneidewind, in Industrial Gas, December, p. 9, 2 pp., 4 photomics.

Two new methods of polishing graphitic irons for metallographic examination are described, the procedure having been developed under auspices of the committee on industrial gas research of the American Gas association, at the University of Michigan, in connection with research in short-cycle malleableizing.

—STEEL, 2-13-33

Rustproof Steels

By Dr. M. A. Grossmann, in the Armour Engineer, student technical publication of Armour Institute of Technology, Chicago, January, p. 5, 10 pp., 2 ills.

Nontechnical review of the development of corrosion-resisting steels and the present state of the art.

—STEEL, 2-13-33

Roll Grinding

By H. J. Wills, in Machinery, February, p. 374, 3 pp.

How to obtain best results in roll grinding; second of a series of five articles giving complete directions for roll grinding operations and wheel selection.

—STEEL, 2-13-33

Electrical Equipment

By H. M. Beatty, a paper presented at a recent meeting of the Electrical Maintenance Engineers' association, Cleveland; circulated by the Dingle-Clark Co., Cleveland, 6 pp.

Suggestions for adapting plant electrical equipment to present operating conditions. Recommendations are of a general nature but capable of specific application. For the maintenance engineer.

—STEEL, 2-13-33

Low-Carbon Chrome Steels

By E. C. Wright and P. F. Mumma, paper to be presented at annual meeting of the American Institute of Mining and Metallurgical Engineers in New York, Feb. 20-23, preprint No. 496, 11 pp., 4 tables.

This paper describes some properties of air-hardening steels in the composition range 0.10 to 0.30 per cent carbon and 1 to 7 per cent chromium. Interesting possibilities of some of these alloys are noted.

—STEEL, 2-13-33

Furnace Atmospheres

By Sam Tour, in Metals and Alloys, December, p. 270, 3 pp., 4 ills.

Discussion of various types of heat treating furnaces, classified according to the motion and condition of the atmosphere within the heating chamber.

—STEEL, 2-13-33

Cutting Steel Under Water

By Charles Kandel, in Machinery, February, p. 369, 5 pp., 5 ills.

Events leading to the development of this under-water cutting torch are described by Commander Edward Ellsberg, officer in charge of salvaging a sunken submarine. Further details outline the method of using the torch and its construction.

—STEEL, 2-13-33

Pressure Vessels

By G. Raymond, in Welding, January, p. 19, 3 pp., 1 ill.

Fabrication of welded pressure vessels by production methods, describing modern handling equipment used to weld tanks "on end" with automatic machines.

—STEEL, 2-13-33

Spark Testing

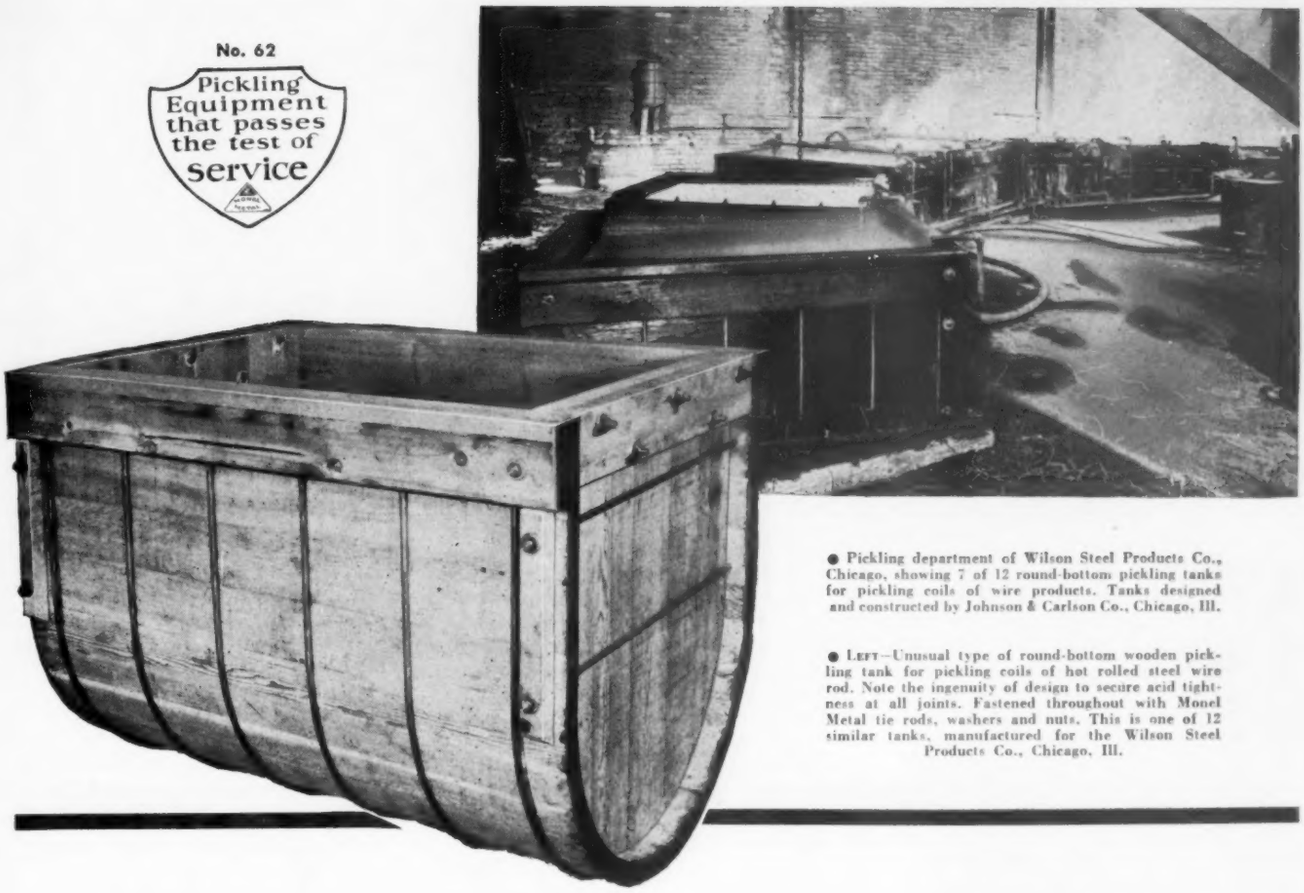
By W. G. Hildorf and C. H. McCollam, in Metal Progress, February, p. 23, 5 pp., 4 ills.

Classifying steels by sparking, a recommended practice for routine inspection. Spark testing is based on the idea that the character of sparks should be similar when streams are examined from a number of samples of the same material. Should one or more of the samples exhibit a spark stream of different character, the presence of a second material is indicated.

—STEEL, 2-13-33

No. 62

Pickling Equipment that passes the test of service



● Pickling department of Wilson Steel Products Co., Chicago, showing 7 of 12 round-bottom pickling tanks for pickling coils of wire products. Tanks designed and constructed by Johnson & Carlson Co., Chicago, Ill.

● Left—Unusual type of round-bottom wooden pickling tank for pickling coils of hot rolled steel wire rod. Note the ingenuity of design to secure acid tightness at all joints. Fastened throughout with Monel Metal tie rods, washers and nuts. This is one of 12 similar tanks, manufactured for the Wilson Steel Products Co., Chicago, Ill.

MONEL METAL TIE RODS...

INSURE LEAK-TIGHT PICKLING TANK JOINTS

● Why let leaky tanks upset your pickling department routine when it's easy to make and keep the joints tight as a drum with Monel Metal tie rods?

These husky tank fastenings save your pickling room force extra work and prolong the service life of your equipment.

Monel Metal tie rods insure a leak-proof seal between tank sections. You can tighten them to the last turn without danger of breaking. That's because Monel Metal combines steel-like strength with maximum resistance to acid or alkaline pickling solutions. Monel Metal tie rods are never guilty of corrosion-failure, and their flawless rolled structure defies thread-stripping.

At the same time, these tie rods are readily adaptable to any type of pickling tank. The round-bottomed tank illustrated shows how Monel Metal rods can be shaped to fit the most highly specialized tank design.

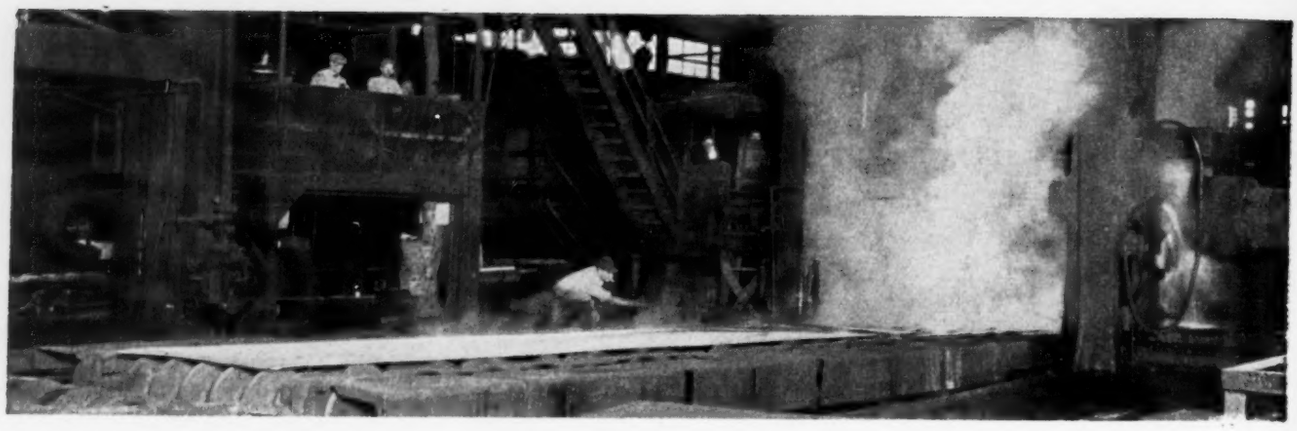
For further information about Monel Metal equipment in any form, consult your regular fabricator, or write us.

Monel Metal

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

INCO MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.



PROGRESS IN STEELMAKING

RENDERING iron and steel rustless by the application of a chemical compound is claimed for a recently developed process. The desired black luster and rust-proofing property are obtained by immersing the metal in a bath of the chemical maintained at a temperature of approximately 265 degrees Fahr. The duration of this treatment ranges from 2 to 10 minutes depending on whether an unpolished finish without reflex or a brilliant blacking finish is desired on the surface of the product. Neither skilled operators nor expensive equipment are required.

• • •

Safety tread steel paving blocks, 12 inches square, designed for patching either concrete, wood block or brick floors or pavements have been introduced by the Ohio steel company. The surface is provided with a slip-proof tread. The blocks are filled with concrete before installing.

MARKED reduction in the scaling of metal, a direct saving in fuel cost and longer life of furnace linings are some of the advantages obtained at a forge shop by the use of powdered coal over other fuels. Records show that 8000 pounds of steel forgings can be rough finished with 3000 pounds of powdered coal per 8-hour day, or 750 pounds per ton of metal heated.

• • •

Selenium, a by-product of sulphuric acid manufacture and copper smelting, now is used commercially by a steelmaker as a free-cutting agent in a new rustless steel, replacing the high-sulphur content. The addition of 0.257 selenium to 18-8 steel permits the finished product to be cut in automatic screw machines at 60 to 70 per cent of the speed at which bessemer screw stock is handled. Selenium steel can be upset into wood screws with a thin flat head without rupture.

FIRING an open-hearth furnace through the roof with the flame directed downward and toward the back wall is being accomplished experimentally and with secrecy at an independent open-hearth shop. This method of firing is understood to have shortened the time of heat and to have effected a saving in the cost per ton of metal.

• • •

Hydraulic power now is being supplied by a recently devised hydrogas accumulator system for rolling mills in which containers partially filled either with compressed air or inert gas take the place of the usual type weighted accumulator. The large energy demands over short periods are furnished by a small motor-operated pump.

• • •

Measuring the density of smoke in flue gases at steel plants by electro-optical means is the purpose of a recently devised meter. A portion of the flue gas is made to pass between a light source and a light-sensitive device. When the smoke varies in density, the quantity of light falling upon the light-sensitive device also varies, and the resulting current variation from the photocell is transmitted to an indicating or recording meter. The chart of the recording instrument is calibrated to read in per cent of smoke density and the indicating scale either in per cent or in terms of Ringelmann smoke scales. Signal lights are provided as a guide for the fireman. By maintaining the correct stack conditions, he avoids excessive smoke and prevents heat loss from excessive dilution of the flue gases.

• • •

Employing the electric arc welding process for repairing a shaft driving 20 reels of a strip galvanizing unit at an Ohio plant, was responsible for a large saving in labor and material and for the prevention of a 2-day shutdown. The broken ends of the drive shaft were chamfered and electric welded without removing the shaft from its bearings and the galvanizer placed in service three hours from the time the break occurred.

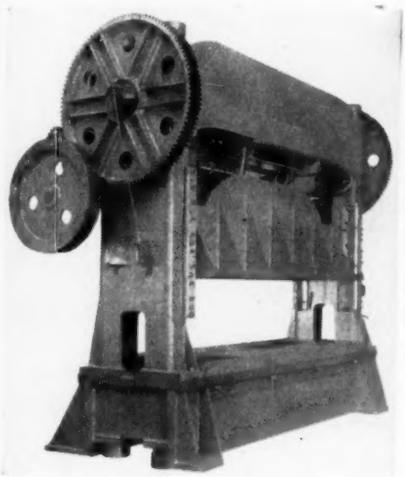
EASE of application and removal is claimed for a flux recently designed for soldering sheet steel where prevention of rust is essential. The material is a white creamy chemical which is brushed on like paint. The coating dries within 10 to 15 minutes. The surface can be tinned or soldered either before or after the coating dries. A thin film of the flux applied to the steel neither runs nor spreads when heated. The residue remaining after soldering is confined to a restricted area, from which it is removed easily with a wet cloth.

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Designs Straight Side Double Crank Presses

Allsteel Press Co. Inc., 12015 South Peoria street, Chicago, recently developed a new line of straight side, double crank presses, an example of which is shown in the accompanying illustration. The unit has a capacity of 350 tons with a bed area of 48 by 140 inches. It is double geared with twin drive. Two balance wheels, one on each end of the high-speed backshaft, apply power smoothly. Frame is of 4-piece tie rod construction and the crown is of box type properly ribbed and braced to support the main bearings and provide the necessary rigidity.



Verson Allsteel straight side double crank press of 350 ton capacity

The bed is built flush with the floor, no pit being necessary. Uprights are of tubular construction, the plates being bent at the corners and welded centrally. The ram is contained within the ways at all points of the stroke and is spring counter balanced. Gibways are integral with the uprights and are bronze faced. Adjustment for wear is provided by heavy steel gibs which also are faced with bronze.

◆

Introduces Small Capacity Jig Boring Unit

R. Y. Ferner Co., Investment Bldg., Washington, as American agent for Societe Genevoise, Geneva, Switzerland, has introduced a new type of precision layout and boring machine. The unit, shown in the accompanying illustration, has a working capacity of 8 x 12 inches. The unique feature is the fact that the work table rests directly on the bed of the machine and can be placed in any position within its range by direct movement on the wide flat ways.

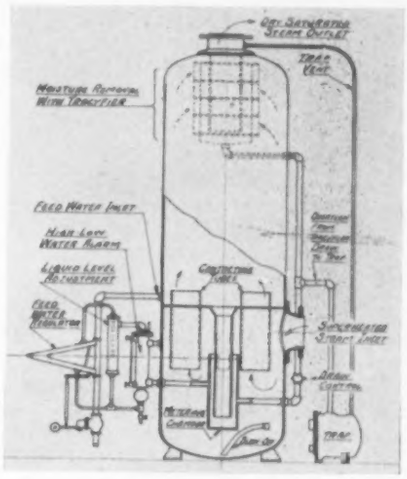
A second outstanding feature is the provision of vertical motion only for the boring head mounted on a single column, on which the slide can be moved through 9½ inches by a rack and pinion for rapid traverse when changing tools. The spindle has a feed of 4 inches and a wide range of speeds from 190 to 3000 revolutions per minute. This permits drilling holes with a No. 55 drill or even smaller, and boring of holes as large as 1⅝ inches.

Adjustable boring tools and locating microscope are mounted on a large external cone on the spindle. This machine can be operated with such speed that it is a practical unit for direct production of parts up to 12 to 15 inches in length, in a series up to 50 or 100 pieces, or it may be employed for model making and the making of dies, punch and die plates, molds, jigs, master plates and fixtures.

Precision layout and jig boring machine marketed by R. Y. Ferner Co.

Desuperheater Based on New Principle

Blaw-Knox Co., Pittsburgh, has added to its line of steam power equipment a desuperheater based on an entirely new principle, which embraces in one piece of apparatus, complete desuperheating with steam purification. While the design, shown herewith, is distinctly new in desuperheating, the main parts have been amply tested in standard equipment over a long period of time. Essentially the unit consists of a contractor combined with a tracyfier (steam purifier) and equipped with a standard make of boiler feed water regulator.



Diagrammatic arrangement showing design of Blaw-Knox desuperheater

A simple, rugged boiler feed water regulator is all that is required in the way of control apparatus. This regulator insures an ample supply of water present in the desuperheater at all times. By the action within the unit, a large supply of water automatically is forced into extremely intimate contact with the steam, insuring complete elimination of superheat. Due to this same action and the fact that a large surplus of water is present in contact with the steam, changes in quantity of steam passed, increases or decreases in the amount of superheat, or changes in steam pressure are immediately and automatically cared for. When water is evaporated the dissolved solids or dirt are left behind.

More Bridge per Dollar with

C B SECTIONS

U.S. STEEL

Illinois Steel Company

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

208 South La Salle Street, Chicago, Illinois

C B SECTIONS again lend themselves to simplified construction in a new type of railroad trestle. The bridge illustrated was constructed at Paroquet, Arkansas, for the Missouri Pacific Railroad.

Markets on Dead Center; Stabilizing Prices

Steel Rate Remains at 19—Unfilled Tonnage Decline Vitiates Ingot Output Gain of January—Cold Snap Moves Coke—Erie 30,000-Ton Rail Inquiry Near

IRON and steel activity hangs in the balance. Steelmaking operations barely held at 19 per cent in the week ended Feb. 11 and the decline of 69,496 tons or 3.5 per cent in unfilled orders of the United States Steel Corp. Jan. 31 suggests that improvement in production in January may have over-run new business.

As an offset, such major districts as Pittsburgh and Youngstown have brought in more capacity, neutralizing curtailment at Cleveland, Buffalo and Birmingham; Ford has resumed and is expected to release substantial requirements this week; an important rail inquiry is being formulated; a number of large structural projects are a step nearer maturity.

The reading of these developments is encouraging for the long pull. The January showing in steel production, when the daily rate increased to 38,704 tons from 32,485 tons in December, was made almost entirely without the assistance of such heavy consuming industries as the railroads, farm implement and construction.

The lift thus far in 1932 has been the result of numerous small consumers becoming more active, plus a rate of assembly of automobiles outrunning January and February a year ago. To the shutdown of Ford Jan. 26 and the consequent far-reaching holdup of material considerable of the recent easiness in demand may be attributed, and Ford business will be an important factor in the last half of February. Ford will offer a still lower priced model.

Recent weakness in sheet and wire prices may prove salutary by instilling a sounder appraisal of the price situation. Stabilization of both sheet and wire quotations is in process, and heavy finished steel may be included. Producers of semifinished steel appear to have averted a sympathetic reduction in their levels. Scrap is less buoyant than a week ago, being extremely sensitive to the operating situation, but still is firm.

The Erie is expected to inquire shortly for 30,000 tons of rails. When the New York Central enters the market, which is indefinite, 25,000 tons may be the limit of its requirement.

Governor Lehman's emergency public works commission has approved various New York state projects, aggregating 200,000 tons of steel, for which R. F. C. funds are being sought. Active at this time in the New York market are structural jobs requiring 28,000 tons, while a bridge at Hartford, Conn., will take 15,750 tons. Fabricators are figuring on the San Francisco bay bridge, up for bids next month and taking nearly 200,000 tons. Last week's structural awards totaled 7904 tons.

The Pan-American Oil Co. building program entails 4500 tons, for which specifications are coming out, while another oil interest is a likely buyer of 5000 tons.

Pig iron shipments are continuing in February the improvement which set in last month. In the Great Lakes district a number of Ford suppliers have again released iron. Coke has benefited from the recent cold wave, and stocks have been reduced appreciably.

Steel scrap is up 25 cents at Pittsburgh on the strength of an $8.50 offer by a mill, while borings and compressed sheets have gained a like amount on actual transactions. Italy is assembling 25,000 tons of scrap in the East.

Preliminary estimates of the 1933 iron ore movement on the Great Lakes range from 5,000,000 to 15,000,000 tons, with 7,000,000 tons a likely figure. The movement in 1932, at 3,588,000 tons, was a record low.

This week the iron and steel composite of STEEL is off 8 cents to $28.27, the finished steel composite is steady at $45.30, the scrap composite is up 4 cents to $6.33.

Composite Market Averages

	Feb. 11	Feb. 4	One Month Ago Jan., 1933	Three Months Ago Nov., 1932	One Year Ago Feb., 1932	Ten Years Ago Feb., 1923
Iron and Steel Composite	$28.27	$28.35	$28.68	$29.12	$29.56	$42.61
Finished Steel Composite	45.30	45.30	46.13	47.20	46.72	61.60
Steelworks Scrap Composite	6.33	6.29	6.23	6.87	7.89	20.65

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars, and black pipe. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Feb. 11, 1933	Jan. 1933	Nov. 1932	Feb. 1932
Pig Iron				
Bessemer, del., Pittsburgh	$15.76	15.76	15.76	16.96
Basic, valley	14.00	14.00	14.00	15.00
Basic, eastern, del. eastern Pa.	13.50	13.50	13.50	16.00
No. 2 foundry, del. Pittsburgh	15.76	15.76	15.75	16.76
No. 2 foundry, Chicago	15.50	15.50	15.50	16.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	11.00
**No. 2X, Virginia furnace	17.75	17.75	17.75	18.00
**No. 2X, Eastern, del., Phila.	13.76	13.76	13.95	15.76
Malleable, valley	14.50	14.50	14.50	15.50
Malleable, Chicago	15.50	15.50	15.50	16.50
Lake Superior charcoal, del. Chi.	23.04	23.04	23.04	23.04
Gray forge, del. Pittsburgh	15.63	15.63	15.63	16.33
Ferromanganese, del. Pittsburgh	73.24	73.24	73.24	80.24

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

Coke				
Connellsville, furnace, ovens	1.75	1.75	1.80	2.25
Connellsville, foundry, ovens	2.50	2.50	2.65	3.25
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	26.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	26.00
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	27.00
Wire rods, Pittsburgh	35.00	36.20	37.00	37.00

	Feb. 11, 1933	Jan. 1933	Nov. 1932	Feb. 1932
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.50
Steel bars, Chicago	1.70	1.70	1.70	1.60
Steel bars, Philadelphia	1.91	1.91	1.91	1.81
Iron bars, Chicago	1.65	1.65	1.65	1.70
Shapes, Pittsburgh	1.60	1.60	1.60	1.50
Shapes, Philadelphia	1.65	1.70	1.75	1.62
Shapes, Chicago	1.70	1.70	1.70	1.60
Tank plates, Pittsburgh	1.60	1.60	1.60	1.50
Tank plates, Philadelphia	1.59½	1.66	1.77	1.69½
Tank plates, Chicago	1.70	1.70	1.70	1.60
Sheets, No. 10 blue anneal., Pitts.	1.60	1.65	1.70	1.70
Sheets, No. 24, hot ann., Pitts.	2.00	2.05	2.10	2.15
Sheets, No. 24 galvan., Pitts.	2.50	2.70	2.85	2.75
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	1.90
Sheets, No. 24 hot ann., Chi.	2.15	2.25	2.25	2.35
Sheets, No. 24 galvan., Chi.	2.75	2.85	2.90	2.95
Plain wire, Pittsburgh	2.10	2.15	2.20	2.20
Wire nails, Pittsburgh	1.80	1.90	1.95	1.95
Tin plate, per base box, Pitts.	4.25	4.25	4.50	4.75
Scrap				
Heavy melting steel, Pitts.	$8.50	8.35	9.15	10.25
Heavy melting steel, eastern Pa.	6.50	6.50	7.25	7.35
Heavy melting steel, Chicago	5.25	5.25	5.60	6.80
No. 1 wrought, eastern Pa.	6.50	6.50	7.25	9.00
No. 1 wrought, Chicago	5.00	5.00	5.60	6.85
Rails for rolling, Chicago	7.75	8.05	8.25	9.85

Sheets

New Classifications Adopted at Chicago to Stabilize Prices—More Automotive Releases

SHEET PRICES, PAGE 35

Pittsburgh—Sheet prices appear more regular at the lower levels. Some mills are making 2.60c, Pittsburgh, their minimum on galvanized sheets, while others are booking business at 2.50c. The bulk of the black sheet specifications are moving at 2.00c, but the smaller orders are taking 2.10c. Light cold rolled sheets are quoted 2.30c but some 2.25c business is understood to have been placed recently. Wheeling Steel Corp., Wheeling, W. Va., booked an order last week for furnishing Pennsylvania with road culvert pipe for 1933. While the tonnage is not divulged, it is sufficient to keep the company's culvert department at work for three months, though production will be apportioned over the year.

Philadelphia—While subject to some shading, sheet prices here are unchanged for the first time in several weeks. Inquiry is better, although actual orders are light.

Placing of 500 tons for the local customs house is the largest recent order here for galvanized sheets. This business is reliably reported to have gone to a mill in the Pacific district.

New York—Leading sheet sellers here are establishing 2.60c, Pittsburgh, or 2.95c, delivered, New York, as minimum on galvanized, withdrawing lower quotations. Other grades of sheets are unchanged, reflecting a better tone generally than has prevailed in several weeks.

Buffalo—Sheet mills here are operating slightly below 20 per cent. Price concessions have failed to increase orders.

Cleveland—Current steel financial reports are pointed out by sellers as providing ample grounds for strengthening prices, and it is presumed wider efforts in this direction will be noted in the next 30 days, but in the sheet market, at least, attempts to stabilize prices have not made much progress. Figures below 2.60c, base, Pittsburgh, for galvanized have not disappeared; 2.00c is the more generally recognized price on black; 2.25c is quoted by some makers on No. 20 cold rolled; and blue annealed have been offered in some instances as low as 1.45c. Mills with Chevrolet contacts note an improvement in specifications, as Chevrolet has released 45,000 tons of steel for this month. More encouraging indications point to Ford tonnage shortly. Aside from automotive requirements, demands from container manufacturers are the best in the current market.

Cincinnati—Sheet mill operations are sustained at January levels by moderate increases in miscellaneous spot orders, with automotive specifications fair.

Chicago—Faced with severe losses under a continuation of recent price unsettlement, sheet producers are joining in the movement for establishing new classifications looking toward greater stability in quotations. Galvanized sheets have been advanced to 2.70c base, an increase of $2 over prices prevailing recently. New classifications on black sheets have been adopted, including hot rolled, finished sheets unassorted and not quaranteed for surface or drawing qualities, and finished sheets guaranteed for these qualities. Finished sheets include all-pickled material or all-pickled and cold rolled sheets. Business has shown little change recently, although Detroit labor difficulties have tended to restrict automotive demand slightly. Mill operations average around 15 per cent.

St. Louis—February sheet shipments are likely to be larger than those of January. Specifications from some quarters show further indications of improving.

CURRENT FINISHED STEEL PRICES

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.45c to 1.55c
*Gary, Ind. Harbor, base	1.60c
*Chicago, delivered	1.65c
New York, delivered	1.75c to 1.80c
Birmingham, base	1.60c to 1.70c
Philadelphia, delivered	1.71c to 1.76c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.60c to 1.70c
*Chicago, district mills	1.80c
*Chicago, delivered	1.85c
Philadelphia, delivered	1.86c to 1.91c
New York, delivered	1.90c to 1.95c
St. Louis, delivered	2.04c
Birmingham, base	1.75c to 1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.00c to 2.10c
Gary, Ind. Harbor, base	2.10c to 2.20c
Chicago, delivered	2.15c to 2.25c
New York, delivered	2.30c to 2.35c
Philadelphia, delivered	2.26c to 2.31c
Birmingham, base	2.15c to 2.25c
St. Louis, delivered	2.34c to 2.44c
San Francisco, c.i.f.	2.85c
*Detroit, delivered	2.18½c

GALVANIZED No. 24

Pittsburgh, base	2.50c to 2.60c
*Gary, Ind. Harbor, base	2.70c
*Chicago, delivered	2.75c
*Philadelphia, delivered	2.81c to 2.91c
*New York, delivered	2.85c to 2.95c
Birmingham, base	2.70c to 2.80c
St. Louis, delivered	2.84c to 2.94c
San Francisco, c.i.f.	3.50c

AUTOBODY No. 20

Pittsburgh, base	2.45c

FURNITURE

Pittsburgh, No. 10 heavy	2.40c to 2.50c
Pittsburgh, No. 20 light	2.90c to 3.00c

TIN MILL BLACK No. 28

Pittsburgh, base	2.20c to 2.30c
Gary, base	2.30c to 2.40c
St. Louis, delivered	2.54c to 2.59c

HEAVY COLD ROLLED No. 10

Pittsburgh, base	1.90c
Gary, Ind. Harbor, base	2.00c to 2.10c
Chicago, delivered	2.05c to 2.15c
Philadelphia, delivered	2.11c to 2.16c
New York, delivered	2.15c to 2.20c

COLD ROLLED No. 20

Pittsburgh, base	2.30c
Gary, Ind. Harbor, base	2.40c to 2.50c
Chicago, delivered	2.45c to 2.55c
Philadelphia, delivered	2.56c to 2.61c
New York, delivered	2.65c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.80
Cement coated nails	1.80
Galvanized nails	3.30

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.30c
Annealed fence wire	2.25c
Galvanized wire	2.60c
Woven wire fencing (9-11 gage)	$50.00
(12½ gage and lighter)	$55.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.10c
Spring wire	3.10c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
New York, delivered	1.70c to 1.80c
Philadelphia, del.	1.59½c to 1.69½c
Boston, delivered	1.82c to 2.02c
Buffalo, delivered	1.85½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Birmingham, Ala. base	1.75c
*Coatesville, Pa., base	1.50c to 1.60c
Pacific Coast, c.i.f.	2.00c
St. Louis, delivered	1.94c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, delivered	1.65c to 1.75c
New York, delivered	1.77c to 1.87c
Boston, delivered	1.90½c to 2.00½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, delivered	1.91c
New York, delivered	1.95c
Boston, delivered	2.02c
Pittsburgh, cold finish	1.70c
Pittsburgh, forg. qual.	1.75c and 1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.30c to 1.35c

IRON

Chicago, base	1.60c to 1.65c
New York, delivered	1.85c to 1.90c
Philadelphia, delivered	1.81c to 1.86c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts. billet cut lengths	1.65c
Pitts., stock lengths mill	1.50c
Chicago, billet	1.50c to 1.60c
Chicago, rail steel	1.20c to 1.30c
*Philadelphia, cut lengths	1.76c to 1.86c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Base Pittsburgh for one size, shape and grade for shipment at one time to one destination

10,000 to 19,999 pounds	1.70c
20,000 to 59,999 pounds	1.65c
60,000 to 99,999 pounds	1.60c
100,000 pounds and over	1.57½c

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Tin and Terne Plate

Per 100-pound box, Pittsburgh

Tin plate, coke base, cont.	$4.25
Tin plate, coke base, stock	3.75
Long ternes, 24 unassorted	2.70c to 2.80c

Gary, Ind., base 10 cents higher

Alloy Steel

Hot rolled, f.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O. Base, 2.45c to 2.65c. Differentials to various classes of consumers

S.A.E.	Alloy Diff.		
2000	0.25	4600 .20 to .30 Mo. 1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2500	1.50	5100 Cr. spring	0.20
3100	0.55	6100 bars	1.20
3200	1.35	6100 Spring	0.95
3300	3.30	Cr., Ni., Van.	1.50
3400	3.20	Carbon van	0.95
4100 .15 to .25 Mo.	0.50	9250 (flats) 9250 (rds., sq.)	0.25 0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide Pitts.	1.45c
Do., Chicago	1.55c
Do., del. Philadelphia	1.76c
Do., del. New York	1.80c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold roll, strip, Pitts., Cleve.	1.80c to 2.00c
*Worcester, 3 tons or over	2.10c to 2.20c

Rivets, Wrought Washers

Struc., c.l., Pitts-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
*7/16-in. and smaller, Pitts., Chicago, Cleveland	70, 10 and 10 off
Washers, c.l., Pitts. dist.	6.50 to 6.75 off
Do., Chicago district	7.00 to 6.75 off

Rails, Track Material

Standard rails, mill	$40.00
Relaying rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	23.00 to 25.00
Light rails, 25-45, mills	$30.00
Light rails, Chicago	$32.00
Angle bars, mills	2.55c
Spikes, railroad, mills	2.40c
Spikes, boat, barge, Pitts.	2.65c
Track bolts, Chicago	3.50c
do., standard, jobbers	73 off list
Tie plates, Pittsburgh	$35.00
Tie plates, Chicago	$35.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to Dec. 1, 1932, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ½ x 6 and smaller take lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 75, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ½ x 6 and smaller take lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in. ..... 75-10 off

Cut Nails, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do., less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.65
Steel sheet piling, Pitts.	1.90c

Bars

Most Orders Are for Nearby Delivery as Users Avoid Long Commitments—Prices Hold

BAR PRICES, PAGE 35

Chicago—Soft steel bar sales and specifications are holding fairly well. Automotive demand has been heavier in some directions, while requirements of miscellaneous consumers show little change. The outlook points to fairly active business from automotive interests this month, with only small changes expected in total tonnage. Farm implement manufacturers are more optimistic than a month ago regarding spring business, but without a substantial increase in prices of farm commodities sales are expected to be considerably smaller than during recent years. Operations of tractor manufacturers are relatively better than those of farm implement builders. Soft steel bars continue 1.70c, Chicago.

Philadelphia—Commercial steel bars continue 1.60c, Pittsburgh, or 1.91c, delivered Philadelphia, with trading light. Common iron bars also are unchanged at 1.50c to 1.55c, Pittsburgh, or 1.81c to 1.86c, Philadelphia. Prices on rerolled bars are unsettled.

Pittsburgh—Few bar specifications are for later delivery than over the next two weeks, indicating continuation of hand-to-mouth buying. Especially is this true of automotive accounts, and shipments have been suspended by several Detroit manufacturers. Prices are unchanged.

Cleveland—Specifications for steel bars from builders of agricultural and road machinery have picked up, with some seasonal improvement in these lines, but releases from automobile builders have tapered. January tonnage in alloy steel bars, mainly from the automotive industry, was the best of any month in more than a year, though this demand has not been sustained recently. A small but improved volume of steel bar sales to a diverse list of manufacturers is noted for the week. Commercial steel bars are firm at 1.65c, base, Cleveland.

Tin Mill Operations Hold at 40 Per Cent

Tin Plate Prices, Page 35

Pittsburgh—Tin mill operations are unchanged at 40 per cent. Producers do not have assurance as to canmakers' 1933 requirements, as many have signified they will not contract for the year. This is largely explained by the firmness of the price at $4.25, per base box.

New York—Tin plate specifications continue to come out freely, with the market steady at $4.25 per base box, Pittsburgh.

Cold-Finished Sales Hold to January Rate

Cold Finished Prices, Page 35

Pittsburgh—Shipments of cold-finished steel bars are strictly comparable for the first ten days of February with the same January period. In view of several automotive shutdowns, cold-drawn bars for Detroit destination are moving somewhat slower than was the case a week ago. The market is firm at the base of 1.70c, Pittsburgh.

Plates

Eastern Oil Companies in Market for 10,000 Tons—Barge and Tank Awards Outstanding

PLATE PRICES, PAGE 35

New York—Formal specifications are expected out shortly on the previously noted lot of 4500 tons of tank plates for the Pan-American Oil Co., principally for shipment to Baltimore. Another oil company probably will close soon on tanks requiring 5000 tons of plates, half of them for Marcus Hook, Pa., and the other half for Fort Worth, Tex. This is an extension of work under way. The company will spend $2,000,000 for service stations. Early action also is expected on 500 tons of plates for a treasury vault in Washington, on which bids were opened Feb. 2. In addition to the plates, about 1800 tons of reinforcing material and 1300 tons of iron castings will be required. Plate prices are unchanged at 1.50c to 1.60c, Coatesville, or 1.70c to 1.80c, delivered, New York.

Boston—A considerable part of the small volume of plate business placed in New England is going at 1.60c, Coatesville, Pa., though some orders are moving close to 1.50c, base. Several eastern mills are meeting lower price competition but have not officially reduced quotations.

Philadelphia—Placing of 1700 tons for molasses tanks for the Pennsylvania Sugar Co., this city, features plate buying. The Virginia Ferry Corp. opened new bids Feb. 7, on the construction of its ferryboat, requiring 700 tons of plates, with announcement as to the low bidder expected shortly. Bids will be opened Feb. 15 for the lighthouse tender DAHLIA, requiring around 80 to 90 tons of plates. This vessel will be operated on the Great Lakes. John McShain, general contractor for the naval hospital here, is expected to close soon on 300 tons of plates for caissons for foundation work. This, it is understood, is in addition to approximately 100 tons of sheet piling. Prices generally are 1.50c to 1.60c, Coatesville, Pa., or 1.59½c to 1.69½c, delivered, Philadelphia.

Pittsburgh—Plate bookings by a leading mill here are unimproved over the low January and December rate. Little tank plate tonnage is being booked but river barges are more active. The Marietta Mfg. Co., Point Pleasant, W. Va., has received an order to build ten 175-foot coal barges for the West Kentucky Coal Co. About 1550 tons of steel are needed. The same builder also booked a small oil tank barge for a St. Mary's, W. Va., customer. Sprout-Waldron Co., Muncy, Pa., will supply 300 tons of plates for ducts in the Washington central heating plant. Plates continue 1.60c, base Pittsburgh.

Youngstown, O.—The Brier Hill plate mill of the Youngstown Sheet & Tube Co. resumed rolling Feb. 8 for several days on a group of orders. At the same time the Brier Hill sheet works resumed on a part-time basis.

Cleveland—Many inquiries continue to be received for brewery tanks, but the majority of them are in an uncertain stage, the inquirers wanting prices on tanks which may be required when beer is legalized. Actual tank work is dull. Railroads are taking little material. The local plate mills probably will resume for a few days' run this week. The price is steady at 1.60c, base, Pittsburgh.

Chicago—Despite a moderate gain

in inquiry for fabricated plate construction over recent weeks, orders continue light. Prospective tank work for breweries is increasing but orders are expected to be deferred until congressional approval permits brewery operations. Work of this type in Milwaukee will take about 2000 tons of plates. Plates nominally are 1.70c, Chicago.

Contracts Placed

1550 tons, ten 175-foot coal barges for West Kentucky Coal Co., Paducah, Ky., to Marietta Mfg. Co., Point Pleasant, W. Va. Each barge to have capacity of 1000 tons to be used in coal trade on Mississippi river.

1700 tons, molasses tanks, Pennsylvania Sugar Co., Philadelphia, to McClintic-Marshall Corp., Bethlehem, Pa.

300 tons, ducts, central heating plant, Washington, to Sprout-Waldron Co., Muncy, Pa., through Rust Engineering Co., Pittsburgh, general contractor.

Contracts Pending

800 tons, plates and zee bars, treasury vault, Washington; W. F. Cowper Co., Buffalo, general contractor.

700 tons, ferryboat, Virginia Ferry Corp., subsidiary of Pennsylvania railroad, Philadelphia; new bids opened Feb. 7.

300 tons, caissons, naval hospital, Philadelphia; John McShain, Philadelphia, contractor.

100 tons, can and nun buoys and cylinders, lighthouse bureau, Staten island, N. Y.; bids Feb. 23.

85 tons, lighthouse tender DAHLIA, bids in Washington, Feb. 15; for operation on Great Lakes.

Bolt, Nut Demand Light; Rivets Show No Increase

Bolt, Nut, Rivet Prices, Page 35

Chicago—Automotive orders for bolts and nuts continue light and smaller than during November and December. Improvement in demand from other consumers is insufficient to offset the automotive deficiency, and total business is unimproved. Prices continue 75 off for bolts and nuts, 2.35c for structural rivets.

Philadelphia—Pennsylvania railroad is expected in the market shortly for its regular bi-monthly requirements of bolts and nuts, usually several cars. Jobbers are specifying lightly. Prices are unchanged.

Pittsburgh—Revision of the small rivet discount has not affected the 2.25c, Pittsburgh, market on large rivets nor the discount of 75 off list for carriage and machine bolts. February orders show little increase

Cleveland—Nut and bolt releases here so far this month are ahead of those in the comparable period in January. This is due mainly to a continuation of good business from the automotive industry.

Railroads

Erie Inquiry for 30,000 Tons Rails Thought Imminent—Other Needs Are Being Figured

TRACK MATERIAL PRICES, PAGE 35

Cleveland—Erie railroad will be in the market shortly for its year's rail requirements, estimated at 30,000 tons, and a substantial tonnage of fastenings; this being the first major inquiry so far this year from carriers with headquarters here. Chesapeake & Ohio will not be in the market for rails this month. Railroads here have been buying a considerable number of iar repair parts sinie December, in the aggregate close to 100 tons, in addition to materials for repairs.

Pittsburgh—While many railroads have not yet actively considered the purchase of rails which they will undoubtedly need this year, there are a few immediate prospects. Specifications have come from several roads for miscellaneous steel products but both buying and inquiring for fastenings or other track material in any quantity is notably light. While untested, prices on rail fastenings are unchanged with 2.40c quoted for spikes and $35 per ton for tie plates.

Chicago—Improvement is lacking in releases of track material. Rail specifications continue light and although some new business is in prospect, orders are expected to be deferred for a number of weeks. Accessory releases are steady, maintaining the improved rate noted in January. Specifications from railroads for miscellaneous steel products are light and show little change for several weeks. The equipment market continues stagnant.

Car Orders Pending

Monsanto Chemical Co., St. Louis, one tank car.

Wire Buying Light; Makes Steady Upward Movement

Wire Prices, Page 35

Chicago—Wire demand is little changed this month, following a fairly good increase in January. Automotive requirements are fairly well maintained, although recent strikes hurt the immediate outlook. Quotations continue around recent levels.

Worcester, Mass.—Demand for wire and wire products is light, with slight general improvement in most departments. The price situation continues mixed. There has been only moderate buying for spring shipment.

Philadelphia — Wire nails are slightly steadier at the $1.80, Pittsburgh, price announced in January. Demand, however, is exceedingly light. Plain bright wire is firm.

Pittsburgh—No improvement is noted in orders for wire products. The market is firm here but at some eastern points deviations have been reported on nails. Carload lots of nails are generally quoted $1.80 and plain wire continues 2.10c, with woven wire fencing $50.

Cleveland—Miscellaneous manufacturing requirements for wire are moving upward slowly. Plain wire generally is 2.10c, base Cleveland. Some talk is heard of a prospective advance in wire rods, to $37, the level prevailing previous to the recent reduction, in view of the fact that certain small mills continue to shade the market on finer gages of wire. Some weakness also is reported in nail prices.

Atlanta, Ga.—Page Steel & Wire Co. will supply more than 100,000 feet of special guard rail cable, approximately ¾-inch, for the Georgia state highway commission, bids Feb. 1.

Memphis, Tenn.—Pidgeon-Thomas Iron Co., Memphis, has been awarded 148,980 feet of wire rope for the Federal engineer's office here at $23,112.36, f.o.b., New Haven, Conn.

Lackawanna Strikers Lose

Strike of employes of the Lackawanna Steel Construction Corp., Buffalo, ended two days after it began, the workers returning without change in rates of pay or working conditions.

More "White" Coal Available

Total capacity of water wheels at water power plants in the United States Jan. 1, 1933, was 16,817,941 horsepower, an increase of 255,000 horsepower, or 1.6 per cent, according to the department of the interior.

Take Roadway Marker Bids

Bids to install 10,500 permanent metal roadway markers are asked by the Pittsburgh city controller, to close Feb. 20.

Structural Shapes

New York State Commission Asks Loan for Projects Requiring 200,000 Tons—Active Work in East Is Larger, With 15,700 Tons Up for Connecticut Bridge

STRUCTURAL SHAPE PRICES, PAGE 35

New York—Approximately 28,000 tons of structural steel is active, exclusive of 15,750 tons for a suspension bridge at Hartford, Conn. Governor Lehman's emergency public works commission has approved application to the Reconstruction Finance Corp., for a loan of $98,250,000 for six self-liquidating projects, estimated by fabricators to require approximately 200,000 tons of steel. These include a vehicular tunnel from Thirty-eighth street, New York, to Weehawken, N. J., to cost approximately $75,000,000; the proposed Catskill bridge across the Hudson, and two toll bridges leading to Grand island between Niagara Falls and Buffalo.

Boston — Structural lettings are light, including 200 tons for a New Hampshire bridge. Construction of a bridge over Fore river, Quincy, Mass., taking several thousand tons, has met with approval in the general court. On most tonnage, 1.60c, Pittsburgh, is fairly steady.

Philadelphia—John McShain, general contractor, this city, is expected to act shortly on steel requirements for the naval hospital, to be erected here. In addition to 2800 tons of shapes, there will be required 1000 tons of bars, plates and sheet piling. A site at Ninth and Chestnut streets has been selected for the proposed federal courthouse, estimated to require approximately 7000 tons. Shapes are unchanged at 1.60c to 1.70c, nearest mill, or 1.65c to 1.75c, delivered, Philadelphia.

Pittsburgh—Fabrication of 21,500 tons of shapes for the New York Central railroad warehouse, New York, will be done in this district. Prospects for large structural tonnages in several postoffices, on which bids go in this week and immediately thereafter, give the market a better outlook. On a grouping of orders, structural mill operations here last week were the heaviest of the year to date. Plain material is steady at 1.60c.

Cleveland—Shape fabricators anticipate railroad bridge work this year will furnish a larger tonnage than any other line, with the possible exception of public work if the state decides to go ahead with its building program instead of diverting funds to direct relief. Further, these fabricators believe railroad requirements will not develop to any great extent until the last half of the year. Currently, demand is restricted to small lots, and not many jobs are being figured. Plain shapes continue steady at 1.60c, base, Pittsburgh.

Chicago—The Chicago district is providing practically no structural business and awards and inquiries in nearby states still involve only small lots. The largest individual item pending is a St. Paul postoffice taking 5000 tons, on which bids close shortly.

Contracts Placed

900 tons, state bridge, Choptank river, Caroline county, Maryland, contract, CA-71-27, department of public works, to Roanoke Bridge & Iron Co., Roanoke, Va.; Sanford & Brooks, Baltimore, general contractors.

900 tons, bridge, Choctawatchee Bay, Fla., to Vincennes Bridge Co., Vincennes, Ind.

680 tons, Iowa state highway bridge, Keokuk, Iowa, to Clinton Bridge Works, Clinton, Iowa.

611 tons, Colorado state bridge, Grand Junction, Colo., to Wisconsin Bridge & Iron Co., Milwaukee; noted in STEEL, Feb. 6, to unstated interest.

585 tons, prison, Woodburne, N. Y., to American Bridge Co., Pittsburgh, through Babor-Comeau Co.

475 tons, building for unstated interest, New York, to Harris Structural Steel Co., New York; William I. Hohauser, New York, architect.

400 tons, highway bridge, Barstow, Calif., to McClintic-Marshall Corp., Bethlehem, Pa.

400 tons, administration building and laboratory, drink hall, Saratoga, N. Y., to Ingalls Iron Works Co., Verona, Pa.; Charles B. Saxon Inc., New York, general contractor.

380 tons, bridge, Knights Landing, Calif., to Pacific Coast Engineering Co., Oakland, Calif.

290 tons, shed No. 3 for Albany, N. Y., port commission, to Clausen Iron Co. Inc., Albany.

270 tons, state hospital, Rochester, N. Y., to F. L. Heughes & Co. Inc., Rochester, through McDonald-Spencer Co.

250 tons, bridge, Shelby, O., to Lackawanna Steel Construction Corp., Buffalo.

247 tons, bridges in Huerfano and Las Animas counties, Colorado, to unnamed interest.

230 tons, bridge for Southern Pacific Co., Stockton, Calif., to Moore Dry Dock Co., Oakland, Calif.

200 tons, state highway bridge, Hillsboro, N. H., to Boston Bridge Works, Cambridge, Mass.

180 tons, 150-foot swing draw bridge, Three Mile creek, Mobile county, Alabama; 150 tons of shapes and hand operated machinery to Nashville Bridge Co., Bessemer, Ala.; 30 tons of reinforcing steel to Gulf States Steel Co., Birmingham, Ala.; J. S. Walton, Mobile, general contractor.

150 tons, one 40-ton; one 20-ton and three 5-ton cranes, specification 580 D, bureau of reclamation, Denver, to unnamed interests.

140 tons, administration building and gymnasium, Tennessee Agricultural and Industrial college, Nashville, Tenn., 70 tons of shapes to Nashville Bridge Co.; 70 tons of bars to Wilson - Weesner - Wilkinson Co., Nashville, to be fabricated by Conners Steel Co., Birmingham, Ala.; V. L. Nicholson Co. Inc., Nashville, contractor.

135 tons, piling and reinforcing bars, bridge substructure, St. Lucie river, Florida; 100 tons of piling and bars divided between Lackawanna Steel Construction Corp., Buffalo, and Truscon Steel Co., Youngstown, O. Earle Gear & Machine Co., Philadelphia, awarded bridge operating machinery, approximately 35 tons.

127 tons, repairs to bridge over canal, Bureau, Ill., to Wisconsin Bridge & Iron Co., Milwaukee.

120 tons, Central heating plant for the federal government, Carlisle, Pa., to Shoemaker Bridge Co., Pottstown, Pa.

115 tons, building for Carman Co., Boonton, N. J., to J. K. Cooke & Sons Inc., Athenia, N. J.

115 tons, bridge, Seminole county Oklahoma, to J. B. Klein Iron Foundry Co., Oklahoma City, Okla.

115 tons, bridge, St. Paul railroad, to McClintic-Marshall Corp., Bethlehem, Pa.

100 tons, bridge, Lyndon, Vt., to American Bridge Co., Pittsburgh.

100 tons, piling, postoffice addition, San Francisco, to unnamed interest.

100 tons, Kit Carson school, Sacramento, Calif., to Palm Iron Works, Sacramento.

100 tons, postoffice, Redlands, Calif., to unnamed interest.

100 tons, eight cranes and trolley beams, Sunnyvale, Calif., dirigible station, to Shaw Electric Crane Co., Muskegon, Mich.

Awards Compared

	Tons
Awards, week ended Feb. 11	**7,904**
Awards, week ended Feb. 4	**30,846**
Awards, week ended Jan. 28	**6,995**
Awards this week in 1932	**12,700**
Av. weekly awards, 1932	**14,285**
Av. weekly awards, 1933	**10,186**
Av. weekly awards, Jan.	**8,143**
Total awards to date, 1932	**103,147**
Total awards to date, 1933	**71,325**

Contracts Pending

15,750 tons, suspension bridge, Connecticut river, Hartford, Conn.; bids March 13, Robinson & Steinman, New York, engineers. Project also includes 241

tons of cast steel; 29 tons of malleable iron; 335 tons of cast steel splices.

1770 tons, including 720 tons of shapes and 850 tons of bars, bridges, substructures and approaches, E-219 project, Tammany parish, Louisiana, and E-202-D, same state; W. Horace Williams Co. Inc., New Orleans, contractor.

7000 tons, estimated, federal courthouse, Philadelphia, site at Ninth and Chestnut streets, selected; specifications not expected for several months.

715 tons, bridge, Charlotte-Gastonia, North Carolina; bids Feb. 17.

700 tons, state hospital Rochester, N. Y.; W. E. Wark Co., Philadelphia, low, $622,500.

400 tons, state industrial school, Huntingdon, Pa.; bids Feb. 8.

300 tons, piling and miscellaneous shapes, navy, delivery New York, for trans-shipment to Coco Solo, C. Z.; bids Feb. 21.

300 tons, cranes for Hoover dam.

300 tons, shapes and bars, addition to naval war college, Newport, R. I.; Ferro Concrete Construction Co., Cincinnati, awarded general contract, $200,471.

250 tons, balloon hangar, Sunnyvale, Calif.; bids Feb. 15.

200 tons, postoffice, Yuma, Ariz.; Robert E. McKee, Los Angeles, low for general contract.

200 tons, school, Scarsdale, N. Y.

165 tons, bridge and approaches, Wicomico river, Charles county, Maryland; Empire Construction Co., Baltimore, low, $46,971.

154 tons, sheet piling, North Manitou Shoal Light station, superintendent of lighthouse, Milwaukee.

145 tons, second section, officers' apartment, Fort Jay, Governors Island, New York; North American Building Corp., New York, low.

125 tons, state bridge and highway, Oxford-Webster, Mass.; C. & R. Construction Co., Boston, low, $125,452.

125 tons, sheet piling, United States engineer, Seattle; bids Feb. 23.

120 tons, state bridge reconstruction, Warren county Pennsylvania.

110 tons, state bridge, Revere Beach parkway, Revere, Mass.; Frank Williams & Son, Revere, low, $123,340.

101 tons, state bridge, Shenandoah county, Virginia; bids Feb. 21. About 50 tons of bars required for other bridge and highway work.

100 tons, sluice gates for government dam at Kimberly, Wis.; bids March 10.

Demand Is Key to Newburgh

Newburgh steelworks of the American Steel & Wire Co., in Cleveland, will not be dismantled, Myron C. Taylor, chairman of the United States Steel Corp., has informed Clevelanders who protested abandonment of the works, but any future operation of the plant will depend on demand.

Tungsten Producer Resumes

The Massachusetts Tungsten Co., Mill City Nev., has resumed operations on a small scale. Small orders are coming in from steel companies. Ott F. Heizer is superintendent.

Concrete Bars

Awards Continue Light, Though More Public Work Is Developing in Eastern States — Several Postoffice Contracts Pending—Prices Are Easy

REINFORCING BAR PRICES, PAGE 35

New York—Efforts to hold reinforcing steel bar prices in this district, following the decline in other territories, have generally failed and 1.50c, mill lengths, Pittsburgh, and 1.65c, cut lengths; or 1.83c and 1.98c, delivered, are near the market on the current volume of billet bars. Even the last named delivered prices are easy and will be subjected to more severe pressure on several large contracts pending. The suspension bridge at Hartford, Conn., closing March 13, will take 2750 tons.

Boston—Reinforcing bar prices are easy, with buying light outside of 800 tons for a caisson core wall at Enfield-Ware, Mass. Pending volume is confined to miscellaneous public work.

Philadelphia — Consolidated Expanded Metal Co., 103 Park avenue, New York, is low on reinforcing material for the vault to be erected by the treasury department in Washington. The company's bid included reinforcing bars as well as expanded metal, of which latter around 1300 tons are required. Current orders include 420 tons for work on Peapatch island, Delaware river, for the United States engineer, and 200 tons for tank foundations for the Pennsylvania Sugar Co., this city. Billet steel, cut lengths, in carlots is easy at 1.76c to 1.86c, delivered, Philadelphia.

Pittsburgh—Several large jobs are coming out next week and shortly afterwards for federal postoffices, among which are those at Nashville, Tenn., and Columbus, O. A small Pennsylvania state highway letting went in Feb. 10. Mill shipments continue at about the January rate. Prices generally are based on 1.50c, Pittsburgh, for mill lengths.

Cleveland—Except for moderate size mill sales to nearby districts, concrete bar requirements are the smallest in many months, pending the outcome of Ohio state construction programs. The Columbus, O., postoffice job will take approximately 500 tons. New billet steel in mill lengths continues 1.40c to 1.50c, base, Cleveland.

Chicago—Reinforcing bar awards hold around the rate of recent weeks, orders being headed by about 500 tons for Illinois road work and 340 tons for the Alma, Wis., lock and dam. Private construction is light.

Awards Compared

	Tons
Awards, week ended Feb. 11	3,039
Awards, week ended Feb. 4	4,345
Awards, week ended Jan. 28	3,502
Awards, this week, 1932.....	7,120
Av. weekly awards, 1932....	3,920
Av. weekly awards, 1933.....	3,539
Av. weekly awards, Jan.....	4,348
Total awards to date, 1932..	42,153
Total awards to date, 1933....	24,777

Contracts Placed

800 tons, caisson core wall for earth dike, Swift river dam project, Enfield-Ware, Mass., metropolitan water supply commission, Boston, to Concrete Steel Co., Youngstown, O.; West Construction Co., general contractor.

525 tons, road work, Illinois; 425 tons to Kalman Steel Corp., Bethlehem, Pa.; 100 tons to Missouri Rolling Mill Co., St. Louis.

420 tons, work on Peapatch island, Delaware river, for United States engineer, Philadelphia, reported placed through General Contracting Co., Camden, N. J., to Taylor-Davis Inc., Philadelphia.

340 tons, lock and dam, Alma Wis., to Paper Calmenson Co., Minneapolis.

200 tons, tank foundations, Pennsylvania Sugar Co., Philadelphia, to Kalman Steel Corp., Bethlehem, Pa.

165 tons, highway route 21, section 2, Newark, N. J., to Truscon Steel Co., Youngstown, O., through Standard Bitulithic Co.

150 tons, Dan and Staunton river bridges, Virginia, to Wisconsin Bridge & Iron Co., Milwaukee.

127 tons, bridges in Huerfano and Las Animas counties, Colorado, to unnamed interest.

110 tons, postoffice, Redlands, Calif., to unnamed interest.

102 tons, bars and shapes, postoffice, Cisco, Tex., 62 tons of shapes to Tulsa Steel Co., Sand Springs, Okla.; 40 tons of bars to Western Iron & Foundry Co., Wichita, Kan.; H. W. Underhill Construction Co., Wichita, Kans., contractor.

100 tons, or more, highway, Hale, Marengo and Green counties, Alabama, to Kilby Car & Foundry Co., Anniston, Ala.; Hancock Co., Mobile, Ala., general contractor.

Contracts Pending

2750 tons, bridge, Connecticut river, Hartford, Conn.; bids March 13.

1300 tons, expanded metal, vault for treasury department, Washington, Consolidated Expanded Metal Co., 103 Park avenue, New York, reported low. This company's bid also includes a substantial tonnage of bars.

1000 tons, federal narcotic buildings, Lexington, Ky.; Great Lakes Construction Co., Chicago, awarded general contract.

800 tons, bridges, substructures and approaches, E-219 project, Tammany parish, Louisiana, and E-202-D, same state; W. Horace Williams Co. Inc. New Orleans, contractor.

550 tons, apartments in Newark, N. J., for Prudential Insurance Co.; alternate bids on concrete and structural steel construction.

500 tons, treasury vault, Washington; W. F. Cowper Co., Buffalo, contractor.

500 tons, postoffice, Nashville, Tenn.; bids Feb. 15.

500 tons, postoffice, Columbus, O.; bids Feb. 17.

400 tons, postoffice, San Jose, Calif.; bids Feb. 17.

289 tons, bridge, Charlotte-Gastonia, N. C.; bids Feb. 17.

225 tons, Humboldt sewer, St. Louis; George C. Pendergast & Sons Inc., St. Louis, general contractor.

120 tons, bridge at Knights Landing, Calif.; Pacific Coast Steel Corp., San Francisco, low.

100 tons, highway mesh, state highways, mainly in Duval county, Florida; bids Feb. 17.

Ore Estimates Vary; Price Attitude Firm

Iron Ore Prices, Page 43

Cleveland—Lake Superior iron ore prices are not likely to be changed this year, according to some producers here, though there have been no definite discussions as yet with consumers. The abundance of ore in stock at lower lake ports and furnaces will delay action for some time. Estimates by producers pertaining to shipments this year range from 5,000,000 to 15,000,000 tons, one large and conservative interest inclining to the belief the total will be near 7,000,000 tons. Shipments in 1932 were 3,588,608 tons. All say a more definite forecast cannot be made until the year is farther advanced and the trend of steel production in the spring months is observed. Some view the outlook for steel this year and in the first quarter of 1934, for which shipments must be made, as decidedly encouraging, basing this on pent-up steel requirements, which cannot be much longer deferred.

Anti-Injunction Bill Passed

The Indiana legislature has passed a labor anti-injunction bill forbidding the issuance of injunctions by courts in labor disputes unless testimony given in open court indicates there is danger to life or property.

Pipe

Oil Country Specifications Slower—Some Line Projects Active —6650 Tons Pend for Bridge

PIPE PRICES, PAGE 50

New York—Cast pipe inquiry is dull, with buying in small lots. Most of the light pending volume will not be placed for several weeks. A Brooklyn, N. Y., utility corporation has bought a small lot of 6-inch. Newburgh, N. Y., is inquiring for 200 tons, while a small lot of 18-inch will be required for a Westchester county, New York, sewer project. Prices are frequently shaded.

The Atlantic Refining Co. has closed on 3000-feet of 9⅝-inch steel pipe for Texas, approximately two carlots.

Boston—Since the recent opening on several thousand tons of cast pipe for Boston and Massachusetts, new inquiry is light, although several municipalities are tentatively drawing up requirements, including Hartford, New Britain, Springfield and Bristol. Prices are barely steady.

The Hartford river bridge wil ltake 6650 tons of 20-inch o.d. steel pipe, mainly for foundations, and several hundred tons of malleable and steel pipe for hand-rails. Detailed steel requirements for this suspension span ppear in this issue of STEEL under the various market classifications, cable and wire requirements having been announced in the Jan. 30 issue of STEEL.

Pittsburgh—New business in line pipe is lacking, but some projects still are considered active. Specifications for oil country goods have declined. Standard pipe is moving slowly and no change is noted in mechanical tubing. The Benwood, W. Va., tube mill resumed last week with sufficient orders to maintain operations for at least three weeks.

Cleveland—Small orders for servicing purposes, and from jobbers, make up a light volume of pipe business here. Republic Steel Corp., Youngstown, O., will complete this week the rolling of 14,000 tons of line pipe which it booked recently for the Phillips Petroleum Co., Bartlesville, Okla.

Birmingham, Ala.—Cast iron pipe plants in this district continue to operate at the recently improved rate, although reporting that federal financing has done little so far to increase bookings. Much of the latter class of work is expected to develop in the spring.

Chicago—Except for the Chicago pumping station, pending work involving cast iron pipe requires only small lots. Action on several projects, including the Wilmette, Ill., waterworks and construction at Springfield, Ill., and Ft. Wayne, Ind., is deferred. New inquiry is unimproved and cast pipe prices are receiving practically no test.

Cast Pipe Placed

1290 tons, 6 to 30-inch class 150, 250 and B, Pasadena, Calif.; allocated as follows: To United States Pipe & Foundry Co., Birmingham, Ala., 692 tons, and 598 tons divided between the National Cast Iron Pipe Co. and American Cast Iron Pipe Co., Birmingham.

197 tons, 2 to 8-inch class 150, Soledad, Calif., to unnamed interest.

Steel Pipe Placed

Unstated tonnage, 40 sections, 30-foot each, ⅜-inch, flange steel welded discharge pipe for floating pipe line, 40 cast steel ball joints and four spare ball joints, to United States engineer, Vicksburg, Miss., to Midland Barge Co., Midland, Pa., $7232; bids Jan. 31. St. Louis Structural Steel Co. awarded 150 sections, 14-foot each, 16-inch i. d. steel shore pipe, same station, $1920; bids Jan. 27.

Unstated tonnage, 4320 feet, shore pipe, United States engineer, Sacramento, Calif., to Pacific Coast Engineering Co., Oakland, $6817.50.

Wrought Pipe Placed

Unstated tonnage, 37,260 feet, ¾-inch wrought iron pipe, Rock Island, Ill., to Grinnell Co., Chicago, 8.339c a foot, delivered. Tyne Co. awarded 12,415 feet 1½-inch, at 18c, delivered.

Cast Pipe Pending

2115 tons, 20-inch, metropolitan water district, Boston, United States Pipe & Foundry Co., Burlington, N. J., low.

1500 tons, 24-inch, Louisville, Ky.; plans being completed.

570 tons, 6-inch class 250, East Bay municipal utility district, Oakland, Calif.; United States Pipe & Foundry Co., Birmingham, Ala., low.

300 tons, castings, bureau of sewers and water supply, Baltimore; bids Feb. 15.

Steel Pipe Pending

6650 tons, 123,000 linear feet, 20-inch o. d., ½-inch wall, piling bridge, Connecticut river, Hartford, Conn., bids March 13. Also approximately 500 tons of malleable iron and steel handrail and posts.

A. O. Smith Corp., Milwaukee, is delivering to Laredo, Tex., a 117½-foot welded steel cylinder, weighing 253,000 pounds, for use in treating railroad ties.

Coke

Foundry Orders at Chicago Up —Furnace Contracts

Coke Prices, Page 43

Pittsburgh—Some melters here take small lots of foundry coke and the common grades are moving at $2.25 to $2.50. Premium grades apparently are holding at about $4, ovens. The furnace coke price still is around $1.75. A fairly large contract for furnace coke is reported placed recently.

Birmingham, Ala.—More domestic coke is being sold for delivery to New England and middle western states. Foundry requirements are steady.

New York — Metallurgical coke specifications show further slight improvement, with prices steady. Beehive furnace is $1.50 to $2, and $2 to $2.15, Connellsville, Pa., for heating and smelting grades, respectively and beehive foundry, $2.50 to $4, western Pennsylvania ovens. By-product foundry coke is $8.21 to $8.81, Newark, N. J.; $10, New England; and $8.50, Philadelphia.

Cincinnati—Demand for domestic coke boomed during the past week, coincident with a cold wave. The market for foundry coke is stagnant, although some increase in tonnage was traced to automotive production.

Chicago—Foundry coke demand is heavier than in January, while activity in heating fuel has been stimulated sharply by the coldest weather in 34 years. Foundry operations are increasing steadily. Foundry coke continues $7, ovens, for outside delivery and $7.75, delivered Chicago.

St. Louis—Metallurgical coke shipments continue in small volume, while cold weather has stimulated demand for heating grades.

Alloy Steel Releases For Motor Cars Slower

Alloy Prices, Page 35

Specifications for alloy steels from the automotive industry have subsided, at least temporarily, pending developments at Detroit. The oil industry is taking small lots for repair work. Prices quoted by the leading makers are steady.

Miners at the Colorado Fuel & Iron Co. iron ore mine at Sunrise Wyo., recently furloughed, have been employed by the state to grade three miles of highway.

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Strip

Demand Eases from Automotive and General Users—Prompt Shipment Is Rule—Price Soft

STRIP PRICES, PAGE 35

Pittsburgh — Two independent strip mills rolled here last week, one with two mills operating, the other with three. Lacking backlogs of consequence, strip producers are rolling virtually as soon as orders are received, and shipments are prompt. Only cold-rolled, and at that on negligible business, is being shaded by some mills. While there remains some 2.00c business in cold-rolled, 1.90c is fairly prevalent. Bids reflecting 1.80c base are being made to some accounts. Some sellers refuse, however, to meet 1.80c. No deviation is reported from a firm 1.45c market on carbon hot-rolled strip.

Worcester, Mass. — Cold-rolled strip in New England appears firmer than in most sections, although some business is reported done at 2.00c, Worcester, on more attractive business. Generally, 2.10c, applies, but on small lots 2.20c has not disappeared.

New York—Strip buying remains slow, with cold-rolled moving generally at 1.90c, Pittsburgh, or 2.25c, delivered, locally, and hot strip at 1.45c, Pittsburgh, or 1.80c. Little early improvement is in evidence.

Philadelphia—Strip buying is at a virtual standstill, with hot-rolled unchanged at 1.45c, Pittsburgh, or 1.76c, delivered Philadelphia, and cold-rolled at 1.90c, Pittsburgh, or 2.21c, Philadelphia.

Cleveland—Cold-rolled strip is 1.80c to 2.00c, base, Cleveland, on a light volume of sales. Hot-rolled is 1.45c, base, Pittsburgh. Some improvement in automotive releases, which were held back temporarily during labor difficulties at Detroit, was noted by mill interests here during the week.

Chicago — Automotive strip demand was moderately less active during the past week and specifications from miscellaneous consumers failed to offset this decline. Hot-rolled strip is holding fairly well at 1.55c, Chicago. Concessions of $2 to $4 a ton are noted from the 2.00c, Pittsburgh-Cleveland, base on cold-rolled strip.

Pittsburgh, Youngstown Hold Steel Rate at 19

Pittsburgh—Steel ingot production here advanced another point last week to 18 per cent. The advance was accounted for by a rise in the rate of a leading interest here, which at over 20 per cent was its highest rate for the year. This gain was due largely to releases on structural steel. Operations of another leading interest continue around 16-17 per cent, while the smaller mills are averaging no better than 15. Blast furnace operations among steelworks are holding, with 7 out of 53 furnaces in. Finishing mill operating rates are continuing spotty, and aside from the good gain in structural, an advance in strip schedules provided the only other feature.

Operations, week ended Feb. 11	**19**
Operations, week ended Feb. 4	**19**
Operations, week ended Jan. 28	**19**
Operations, one year ago	**27**
High for 1932, Feb. 6.....	**28.5**
Low for 1932, July 9 & Dec. 24	**12**

Philadelphia—Steelmaking operations continue unchanged at about 11 per cent. Little immediate variation is in prospect.

Buffalo—Steelworks operations at the close of the week ended Feb. 11 averaged about 13 per cent, but for the current week the rate will be 19. Bethlehem is scheduled to operate four open hearths at Lackawanna. Wickwire continues with one furnace and Republic probably will resume the two furnaces after a two-week suspension.

Youngstown, O.—Steel output here last week gained a point to 21 per cent, highest since last May, and was expected to hold near that level this week, although a valley open-hearth plant may go down on a last minute change. Twenty-six of 83 open hearths were melting. Sentiment is distinctly stronger. Scrap prices are unchanged, but shipments are up slightly.

Cleveland—Steel ingot production here for the week ended Feb. 11 averaged approximately 36½ per cent. At the beginning of the week Otis Steel Co. took off one open hearth and operated three, this dropping the rate from 38 per cent to 35. However, Otis resumed with the fourth unit in midweek. The rate now is 38 per cent. Corrigan, McKinney Steel Co. continued with five active units, and American Steel & Wire Co., with four.

Chicago—While ingot production has held recent gains, averaging about 19 per cent, little additional improvement is in prospect and a slight decrease is not unlikely. Blast furnace schedules are steady with six of 36 steelworks stacks and one merchant furnace operating. Finishing mill operations generally are unchanged.

Birmingham, Ala.—Steel production has dropped back to 18-20 per cent, following the working off of the rail mill's program.

Warehouse Selling Steady At About January Rate

Warehouse Prices, Page 50

New York—Demand for steel out of warehouse is light. Slight gains registered late in January by some jobbers are barely maintained. Prices are unchanged but unsettled on several lighter products.

Philadelphia—Jobbing demand here continues at about the January rate which, in turn, was on a parity with December. Prices are unchanged.

Pittsburgh—For lots of less than 25 bundles, galvanized sheets from stock have been cut to 2.85c; blue annealed to 2.65c; black sheets to 3.35c. Lower prices are also effective for shipment by rail from local stock for both lots below and above the 25-bundle limit. No improvement in warehouse specifications is noted in February. Bar, plate and shape prices are holding.

Detroit—Demand for iron and steel out of warehouse shows a slight recession, due in some measure to the strike situation in automobile plants. The entire automotive situation, however, is a little more apathetic. Prices are unchanged.

Cincinnati—Steel jobbers fail to note an upturn in demand this month, sales continuing at the low rate and at prices noted in the latter part of January.

Chicago—A slight gain in sales early this month has been checked, attributed partly to weather conditions. Prices are unchanged and fairly steady.

St. Louis—Business of iron and steel warehousing continues to lag, though tubes have shown more life, and roofing material improved moderately in demand. Individual orders are extremely small.

RAW MATERIAL PRICES

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Asterisk denotes price change this week

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$15.50
Pittsburgh, dist. furnace..	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Philadelphia, delivered	13.26 to 13.76
Virginia furnace	17.25
Granite City, Ill., furnace	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90
Buff., all-rail, Newark	17.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. Louis	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock delivery	15.00
Alabama, New York dock..	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinci.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local delivery	16.50
Buff., all-rail, Brooklyn	19.40
Buffalo, all-rail, Newark	17.78
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	17.75
Eastern, del. Philadelphia	13.76 to 14.26

FOUNDRY, NO. 1X

Buffalo fur., local delivery	17.50
Eastern, del. Philadelphia	14.26 to 14.76

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo, fur., local del.	16.50
Eastern Penna, delivered..	14.63 to 18.91
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district furnace	14.00
Pittsburgh, delivered	14.63 to 15.13
Eastern Penn., delivered	13.50
Buffalo fur., local delivery	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley furnace, standard	25.00
Philadelphia, standard	22.76 to 25.79
Copper bear., E. Pa. fur.	20.50 to 21.50

GRAY FORGE

Valley furnace	14.00
Pittsburgh district furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19; 15—$21 to $23.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

BEEHIVE OVENS

Connellsville furnace	$1.75 to 2.00
Connellsville foundry	2.25 to 2.50
Connellsville prem. fdry.	4.00
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

BY-PRODUCT FOUNDRY

Newark, N. J., delivered	8.21 to 8.81
Chicago, ovens, outside del	7.00
Chicago, delivered	7.75
New England, delivered	10.00
St. Louis, delivered	7.75
Birmingham, ovens	4.00
Indianapolis, delivered	7.75
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, delivered	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania New Jersey furnaces (Nominal)

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports (Nominal)

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.00
North African low phos	7.00
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	8.00
Spanish, North African basic, 50 to 60%	7.00
Tungsten, spot, short ton unit, duty paid	$ 9.75 to 10.00
Newfoundland fdy., 55%	7.00
Chrome ore, 48% gross ton c.i.f.	$15.50 to 16.50

Manganese Ore

(Nominal)

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	nominal
South African, 52%	18 to 19 cents
South African, 49-51%	nominal
South African, 44-47%	nominal
Indian, 48-50%	nominal
Brazilian, 46-48%	17 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	32.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Md.	25.00 to 30.00
Missouri	26.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet and East Chicago	47.00
Birmingham, Ala	50.00

MAGNESITE BRICK

Per Net Ton

Burned, 9 x 4½ x 2½	$61.50
Unburned, 9 x 4½ x 2½	52.00

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bessemer	26.00
Youngstown	26.00
Cleveland	26.90
Philadelphia	31.75
Chicago	26.00
Forging, Chicago	31.00
Forging, Pittsburgh	31.00
Forging, Philadelphia	35.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$35.00
Chicago	36.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	24.00
Ferrosilicon, 50 per cent, freight all., c. l.	74.50
Do, less carload	82.50
Do, 75 per cent	120.00 to 130.00
Spot, $5 a ton higher.	
Silicomang., 2½% carb.	85.00
2% carbon	90.00
1% carbon	100.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. con. del.	9.50
Do, for spot delivery	10.00
Ferrotungsten, stand., lb. cont.	0.94 to 1.00
Ferrovanadium, 35 to 40 per cent, per lb. contained, on analysis	2.60 to 2.80
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	50.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $2.75 unitage	65.00
Ferromolybdenum, stand. 50-60 per cent, per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	0.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, f.o.b. Ill., Ky., net ton car loads	$10.50
Washed gravel, import duty paid tide, gross ton	16.50

Pig Iron

Foundry Consumption in Middle West Still on Upgrade—Southern Furnace Blown In

PIG IRON PRICES, PAGE 43

Pittsburgh—Two merchant furnaces in this and the valley districts continue active, the one at Sharpsville, Pa., being scheduled to complete its run some time this week. It has been in blast for approximately a month. No quantity purchases are noted. Demand for ingot molds appears to be the best in some months. Several foundries in this district are using more cast scrap, such as automobile engine blocks. Prices continue nominal.

New York—Sales continue confined largely to carlots. Buffalo iron for delivery in this district is $14, furnace; and eastern Pennsylvania iron, $12.50 to $13, furnace.

Boston—Several outside domestic producers are giving sellers of imported iron keener competition, notably eastern Pennsylvania at some southern New England points. On a strictly price basis, however, Dutch and Indian are selling under such competition. The Everett, Mass., furnace, shipping largely by truck, is holding to its recent base price on small lots.

Philadelphia—Importers of Indian basic iron deny reports of a sale of 25,000 tons to a Coatesville, Pa., consumer, declaring that no tonnage has recently been received for this account. Last month approximately 700 tons of Indian basic arrived here for shipment to Coatesville but this was on a contract placed about a year ago, it is said. Little domestic buying is noted. Prices are unchanged at $12.50 to $13, base furnace, for eastern Pennsylvania foundry iron, and $13.50, delivered eastern Pennsylvania, for basic.

Cleveland—Releases for pig iron have come through from several foundries making parts for Ford automobiles, and further improvement is anticipated. The volume of shipments to the automotive industry as a whole is not holding up to the January rate. Sales throughout this district are lighter, and in Cleveland are limited to occasional carloads. For local delivery the price is steady at $15, base, furnace; and for shipment into competitive areas generally $13.50 to $14.

Buffalo—The melt has shown little increase, although some foundries plan slightly better schedules in the latter half of the month.

Cincinnati—An Indiana melter is inquiring for 200 tons of foundry iron, and an Ohio melter has obtained prices on 800 tons. Some improvement is noted in farm implements and stoves. Prices are unchanged.

Chicago—Pig iron sales and shipments continue to improve. Demand is more diversified and February shipments are expected to show a fair gain over the January tonnage. Orders are appearing from a number of small consumers who had been out of the market for some time, and shipments to larger users are well maintained. Automotive requirements are holding well. Operations of malleable foundries continue heavier than during the past several months. Jobbing foundry schedules are increasing slowly. Pig iron prices continue $15.50, furnace, for No. 2 foundry and malleable.

St. Louis—The number of small transactions has increased, due to more frequent buying by jobbing foundries. Business is chiefly from miscellaneous sources.

Birmingham, Ala.—Production has been increased with the blowing in of a blast furnace by the Woodward Iron Co., Woodward, Ala. The market, however, is dull; prices remaining $10, base, Birmingham, for outside shipment, and $11 for local delivery.

Toronto, Ont.—Canadian pig iron production is holding to about 12,000 tons per month, with practically no imports. Melters continue to buy only as required to fill orders, principally for automotive castings. Prices are unchanged.

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For more than sixty years PHOENIX ROLLS have been the standard of comparison and service throughout the steel mills of the world, rolling millions of tons of steel annually.

PHOENIX SERVICE: has come to mean a continuing interest in every roll we sell until its full life has been obtained.

Recently modernized Open Hearths, Air Furnaces, Grinding and Finishing equipment enable us to lead the present day trend toward more durable rolls which will give better finish and reduced rolling mill costs.

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Phoenix "K" Rolls
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Phoenix Chill Rolls
Phoenix Nickel Chill Rolls
Phoenix Steel Rolls
Phoenix Sand Rolls

PHOENIXLOY
(Uniformly Hard)

PITTSBURGH ROLLS CORPORATION
» » » » PITTSBURGH, PA. « « « «

Ferroalloy Shipments Up; Furnace Is Blown In

Ferroalloy Prices, Page 43

Ferromanganese shipments show further gain, with leading sellers quoting $68, duty paid. Domestic spiegeleisen, 19 to 21 per cent, is moving steadily on contracts, with spot buying negligible. The spot market is $24, furnace. E. J. Lavino's blast furnace at Sheridan, Pa., blew in last week on ferromanganese.

Scrap

Slight Gain in Melt Gives Market Aid—Much Eastern Steel Loaded for Export

Chicago—Activity in the scrap market has declined, new buying being light while severe weather has held up some shipments against contracts. Mills continue to defer making purchases for future requirements and some are reducing stocks. Small scrap consumers account for light tonnages despite a slight increase in operations. Prices are steadied by the small volume of offerings but largely are nominal. Heavy melting steel continues $5 to $5.50. Iron car wheels are slightly stronger.

Pittsburgh—Because of willingness of a leading mill here to pay $8.50 for No. 1 heavy melting steel late last week, the market on this grade has been advanced 25 cents. It is now quoted $8.25 to $8.75.

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	7.50 to 8.00
Boston, dealers	3.00 to 3.25
Buffalo, No. 1	7.00 to 7.50
Buffalo, No. 2	6.00 to 6.50
Chicago	5.00 to 5.50
Cleve., No. 1	7.00 to 7.50
Cleve., No. 2	6.00 to 6.50
Det., No. 1 deal.	4.50 to 5.00
Det., No. 2 deal.	3.75 to 4.25
E. Pa. del. mill	6.50
E. Pa., No. 2 del.	4.50 to 5.00
Federal, Ill.	4.75 to 5.25
Granite City, Ill.	5.00 to 5.50
N. Y., deal. R. R.	5.00
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	2.50 to 3.00
Pitts. No. 1	8.25 to 8.75
St. L. No. 1 sel.	5.50 to 6.00
Valleys, No. 1	8.50 to 9.00

COMPRESSED SHEETS

Buffalo, dealers	6.00 to 6.50
Chi. (Factory)	4.00 to 4.50
Cleveland	6.50 to 7.00
Detroit, dealers	4.00 to 4.50
E. Pa. new mat.	5.00 to 6.00
Pittsburgh	8.00 to 8.50
Valleys	8.00 to 8.50

BUNDLED SHEETS

Buffalo	4.00 to	4.50
Cincinnati, del.	4.00 to	4.50
Cleveland	4.50 to	5.00
Eastern, Pa.		5.00
Pittsburgh	7.00 to	7.50
St. Louis	1.50 to	2.00

SHEET CLIPPINGS LOOSE

Chicago	2.00 to 2.50
Cincinnati	1.50 to 2.00
Detroit, dealers	1.25 to 1.75
St. Louis	1.50 to 2.00

STEEL RAILS SHORT

Birmingham	8.50 to 9.00
Boston, dealers	3.00 to 3.25
Buffalo	9.50 to 10.00
Chicago (3 ft.)	7.50 to 8.00
Chicago (2 ft.)	8.00 to 8.50
Cincinnati, del.	8.50 to 9.00
Detroit, deal.	8.00 to 8.50
Pitts. (open-hearth, 3 ft. and less)	10.00 to 10.50
St. Louis	7.00 to 7.50

STOVE PLATE

Birmingham	5.00 to 5.50
Boston, dealers	2.00 to 2.50
Buffalo	7.25 to 7.50
Chicago, net	4.50 to 5.00
Cinci., deal. net	3.50 to 4.00
Det., net deal.	2.50 to 3.00
Eastern, Pa.	6.00
N. Y., deal. mill	2.50 to 3.00
St. Louis	5.50 to 6.00

COUPLERS, SPRINGS

Buffalo	8.50 to 9.00
Chicago	6.50 to 7.00
Eastern Pa.	8.00 to 8.50
Pittsburgh	9.50 to 10.00
St. Louis	5.25 to 6.25

ANGLE BARS—STEEL

Chicago	7.00 to 7.50
St. Louis	5.75 to 6.25

LOW PHOSPHORUS

Buffalo, billets and bloom crops	8.50 to 9.00
Cleveland bil. and bloom crops	10.00 to 11.00
Eastern Pa.	8.00 to 8.50
Pittsburgh billet bloom crops	10.00 to 10.50
Pitts., sheet bar crops	10.00 to 10.50

FROGS, SWITCHES

Chicago	5.00 to 5.50
St. Louis	5.00 to 5.50

SHOVELING STEEL

Chicago	5.00 to 5.50
Cleveland	5.75 to 6.00
St. Louis	4.75 to 5.25

RAILROAD WROUGHT

Birmingham	7.50 to 8.00
Boston, dealers	1.00 to 1.50
Buffalo, No. 1	4.50 to 5.00
Buffalo, No. 2	7.00 to 7.50
Chi., No. 1, net	4.50 to 5.00
Chicago, No. 2	5.00 to 5.50
Cinci., No. 2	5.00 to 5.50
Eastern Pa.	6.50
N. Y., No. 1, deal.	2.50 to 3.00
Pitts., No. 2	8.25 to 8.75
St. Louis, No. 1	3.50 to 4.00
St. Louis, No. 2	5.00 to 5.50

SPECIFICATION PIPE

Boston	3.00 to 4.00
Eastern Pa.	6.00 to 7.00
N. Y., deal	2.00 to 2.25
St. Louis	4.75 to 5.25

BUSHELING

Buffalo, No. 1	6.00 to 6.50
Chicago, No. 1	3.50 to 4.00
Cinci., No. 1 dl.	4.00 to 4.50
Cinci., No. 2	2.50 to 3.00
Cleve., No. 2	3.00 to 3.50
Det., No. 1 new deal.	3.50 to 4.00
St. L., No. 1	3.00 to 3.50
Val. new No. 1	8.50 to 8.75

MACHINE TURNINGS

Birmingham	2.50 to 3.00
Boston, dealers	0.75 to 1.00
Buffalo	3.75 to 4.25
Chicago	3.00 to 3.50
Cinci., deal	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit	1.75 to 2.25
Eastern Pa.	3.00 to 3.50
N. Y., deal.	1.35 to 1.50
Pittsburgh	6.25 to 6.75
St. Louis	1.50 to 2.00
Valleys	6.25 to 6.75

BORINGS AND TURNINGS

For Blast Furnace Use

Boston, dealers	0.75 to 0.90
Buffalo	3.50 to 3.75
Cinci., deal	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal	2.25 to 2.75
Eastern Pa.	3.50 to 3.75
N. Y., deal.	1.35 to 1.50
Pittsburgh	5.50 to 6.00

CAST IRON BORINGS

Birming., chem.	12.00 to 13.00
Birming., plain	2.50 to 3.00
Boston, chem.	5.50 to 6.00
Boston, dealers	1.00 to 1.25
Buffalo	4.25 to 4.50
Chicago	3.00 to 3.50
Cinci., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	2.25 to 2.75
Eastern Pa.	3.50 to 3.75
E. Pa., chem.	8.00 to 10.00
N. Y., deal.	1.00 to 1.50
Pittsburgh	5.75 to 6.25
St. Louis	2.00 to 2.50

PIPE AND FLUES

Cinci., deal.	3.25 to 3.50

RAILROAD GRATE BARS

Buffalo	4.00 to 4.50
Chicago, net	5.00 to 5.50
Cincinnati	4.00 to 4.50
Eastern Pa.	5.50 to 6.00
N. Y., deal.	3.50 to 4.00
St. Louis	4.50 to 5.00

FORGE FLASHINGS

Boston, dealers	2.00 to 2.50
Buffalo	5.50 to 6.00
Cleve. ov. 10 in.	6.00 to 6.50
Detroit	2.75 to 3.25

FORGE SCRAP

Boston, dealers	1.75 to 2.00
Chicago	6.50 to 7.00
Eastern Pa., del.	5.00 to 5.50

ARCH BARS, TRANSOMS

Chicago, net	5.00 to 5.50
St. Louis	3.50 to 4.00

AXLE TURNINGS

Boston, deal.	2.50 to 3.00
Buffalo	6.25 to 6.75
Chi., elec. fce.	4.50 to 5.00
Cleveland	5.50 to 6.00
Eastern Pa., del.	6.00 to 7.00
Pittsburgh, O. H.	7.00 to 7.50
St. Louis	3.00 to 3.50

STEEL CAR AXLES

Birmingham	9.00 to 9.50
Boston, ship. pt.	5.50 to 6.50
Buffalo	10.00 to 10.50
Chicago, net	8.50 to 9.00
Eastern Pa.	14.50
St. Louis	8.75 to 9.25

SHAFTING

Boston, ship pt.	6.50 to 7.00
Eastern Pa.	11.00 to 12.00
N. Y., deal.	5.50 to 6.00
St. Louis	7.50 to 8.00

CAR WHEELS

Birming., iron	7.00 to 7.50
Boston, iron deal.	3.00 to 3.25
Buffalo, iron	7.00 to 8.00
Buffalo, steel	8.50 to 9.00
Chicago, iron	8.00 to 8.50
Chi., rolled steel	7.00 to 7.50
Cincinnati iron	6.25 to 6.75
E. Pa. iron	8.50
E. Pa. steel	8.00 to 8.50
Pitts., iron	8.00 to 8.50
Pitts., steel	9.00 to 9.50
St. Louis, iron	4.75 to 5.25
St. Louis, steel	6.00 to 6.50

NO. 1 CAST SCRAP

Birmingham	8.00 to 8.50
Boston, textile	6.75 to 7.00
Boston, No. 2	2.00 to 2.25
Buffalo (Mach.)	9.75 to 10.25
Buffalo, cupola	9.00 to 9.50
Chi., mach. net	5.75 to 6.25
Chi., railroad net	5.50 to 6.00
Chicago, agri., net	5.00 to 5.50
Cinci., mach. cup	6.50 to 7.00
Cleve. cupola	7.00 to 8.00
Det., net deal.	6.50 to 7.00
E. Pa. cupola	9.00 to 9.50
N. Y., cup. deal.	4.50 to 5.00
N. Y., del. local foundries	7.00 to 7.50
Pitts., cupola	9.00 to 9.50
San Fran., del.	13.50 to 14.00
Seattle	4.50 to 6.50
St. L. No. 1 mach.	6.00 to 6.50
St. L. No. 1	5.50 to 6.00

HEAVY CAST

Boston, del.	3.25 to 3.50
Bost., mach. cast	7.00 to 7.50
Buffalo, break	6.50 to 7.00
Cleve., break	5.50 to 6.00
Detroit, auto net deal.	7.00 to 7.50
Det. break., dl.	4.00 to 4.50
Eastern Pa.	8.00
N. Y. No. 1, dl.	4.50 to 5.00
N. Y. break, dl.	4.00 to 4.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston, consum.	6.75 to 7.25
Buffalo	8.00 to 8.50
Chicago, agri.	5.00 to 5.50
Chicago, R. R.	5.50 to 6.00
Cinci., agri. del.	6.00 to 6.50
Cinci., R. R., del.	6.50 to 7.00
Cleveland, rail	7.50 to 8.00
Det. auto deal.	5.00 to 5.50
St. Louis	7.00 to 7.50

RAILS FOR ROLLING

5 feet and over

Birmingham	8.00 to 9.00
Boston, deal.	5.00 to 5.50
Buffalo	7.00 to 7.50
Chicago	7.50 to 8.00
Eastern Pa.	9.50
New York dealer	3.75 to 4.25
St. Louis	7.00 to 7.50

LOCOMOTIVE TIRES

Chicago, cut	7.00 to 7.50
St. L., No. 1	5.00 to 5.50

LOW PHOS. PUNCHINGS

Chicago	7.00 to 7.50
Buffalo	9.00 to 9.50
Eastern Pa.	8.00 to 8.50
Pittsburgh	9.50 to 10.00

This buyer had been out of the market for practically three months, with the exception of occasional small distress purchases. One such order was placed early last week at $8.50 for delivery in the Pittsburgh district. Good scrap continues scarce and for that reason chiefly, the market shows somewhat more strength. Hand bundled sheets are moving to two points in this district at $6.75 to $7.25, hydraulic compressed sheets $1 higher. No. 1 steel on two railroad lists was disposed of here almost simultaneously last week. The Pennsylvania's list brought about $9 a gross ton and Baltimore & Ohio scrap at a lower figure. Borings, turnings, compressed and bundled sheets have advanced on buying by downriver mills.

New York—Inquiry is out for 25,000 tons of No. 2 steel for Italy, in addition to the recent buying by that country. Activity is confined to No. 1 and 2 steel for export and some stove plate for Bayonne, N. J. Little scrap is leaving this district by rail and on the two grades most active nearby supply is steadily being lowered. Prices are unchanged.

Boston—Domestic buying of scrap is light with prices generally unchanged on the small shipments sold. Several thousand tons have been sold for export, for Japan and Danzig. The former, about 1000 tons, has been shipped and 3000 tons for Danzig has been assembled for early sailing. Water shipments to eastern Pennsylvania are smaller, including stripped auto blocks, $4.50, barge, and No. 1 at $3.50 to $4. Negotiations are being made for additional export business.

Philadelphia—Apart from reductions in specification pipe and heavy axle and forged turnings, both grades of which are now holding at $6 and $7, delivered, the local scrap market is steady with little business. Prices on No. 2 steel for export to Europe, apparently to Italy, are said to be slightly under $5 a ton, f.a.s., Philadelphia, this being the dealers' buying price.

Buffalo—Principal consumers who bought small lots of heavy melting steel recently appear to have withdrawn from the market. There is no consumer interest. Prices are steady in spite of available outlets.

Cleveland—Buying of steel and iron scrap is slow, but addition of an active open-hearth furnace by a leading steelmaker furnishes further demand. Some blast furnace material has been bought in the Youngstown district. All grades are dull at Cleveland and prices are unchanged and nominal.

Detroit—The iron and steel scrap market is more stagnant, and while prices continue firm and unchanged, there is a shade less showing of strength than recently. Chevrolet, apparently having oversold for January, is offering less scrap in February, although its production of automobiles is unchanged. Chrysler continues to stock its scrap. A shortage of blast furnace grades is noted, with a shipload to be moved to Cleveland provided weather conditions permit. The local mill continues a rather steady buyer of scrap.

Cincinnati—Dealers see a firming tendency in prices of scrap iron and steel, unaccompanied by tonnage buying. Clippings and blast furnace material are moving, but new business is confined to job lots.

St. Louis—About 4000 tons of heavy melting steel has been purchased by an east side mill. Otherwise activities have been confined to carlots for prompt shipment, and the number of such sales is limited. Dealers report difficulty in disposing of cars on track for which they have not specific orders.

Birmingham, Ala.—Movement of steel and iron scrap here is near the vanishing point as melters require little. Sales are few and small.

Toronto, Ont.—Business in iron and steel scrap is specialized. Steel grades are at a standstill here but some small movement is reported in the Montreal field. A favorable demand continues for machinery cast, with dealers' supplies limited. Prices are steady.

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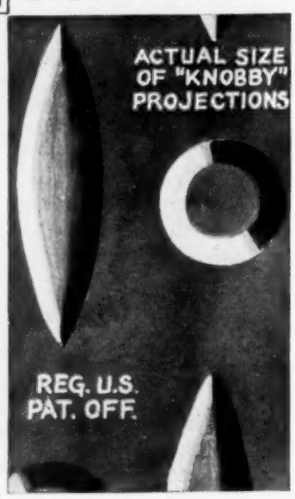

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Sheet Bars Fairly Steady; Wire Rods Strengthening

Semifinished Prices, Page 43

Sheet bars continue to move at $26, base, Pittsburgh, Youngstown, O., and Cleveland, although lower figures are reported to have been developed in some instances. In view of the easy price situation in sheets, some sheet mills have been endeavoring to obtain concessions in bars. Some talk is heard of efforts to restore the recent cut of $2 a ton on wire rods, making the price $37, due to non-integrated mills continuing to shade wire prices. Billets and slabs are steady at $26; and forging billets, $31.

Equipment

Export Business and Navy Awards Only Bright Spots

New York—Inquiry for machinery and equipment is light with new additional export business held in abeyance. One large electrical equipment producer in the East is making up a list of tool requirements, but has made no releases as yet. Two ball bearing makers have stepped up operations slightly on automobile releases. Philadelphia navy yard is inquiring for a milling machine, closing Feb. 28, and on the same date bids closed on a milling machine for Brooklyn. Bids went in on several millers for Norfolk and a tool and cutter grinder for the same shops this week. Micromatic Hone Corp. is low on a cylinder grinder for Philadelphia, opening last week.

Bids close this week on equipment for a craneship, Panama, including three vertical multi-cylinder diesel engines, generators and other power and auxiliary equipment.

Worcester, Mass.—A Northern New England lathe builder has booked 18 lathes for Italy. Other export business is still pending. One builder is doing considerable changing over of equipment for the new Ford model. Production schedules in New England shops, with a few exceptions, are still part time. General industrial demand is light with an occasional order for one or two tools. Brown & Sharpe Mfg. Co., Providence, R. I., has booked a universal grinder for the Frankford, Pa., arsenal and two screw machines for Wright Field, Dayton, O. The Hendy Machine Co., Torrington, Conn., booked a centering machine for Mare Island navy yard.

Chicago — Equipment markets have yet to develop a definite upward trend in demand. Inquiries continue slow and although a fair volume of business is pending and under consideration, orders generally are deferred. Occasional purchases of machine tools are being made, although orders generally call for individual items. Several lists of woodworking tools have appeared in Wisconsin cities, including Milwaukee and Racine. Few purchases are appearing from schools in this district, due principally to difficulties in financing. Low prices continue to prevail on both new and used machinery, supplies in the latter market being supplemented by tools sold at recent auction sales.

Pittsburgh—Inquiries for steel mill equipment appear to be slightly more numerous than they were toward the close of January. Much of the new inquiring is for certain mill repair parts and no large or heavy work is coming out fresh for figuring.

A mill in this district purchased a new normalizing furnace last week from a supplier in Ohio, while the sale of a Steckel-type mill to a Canadian concern was recently noted. There are a few inquiries out here for steel mill parts from Japanese interests, though their machine tool purchasing in other districts has been relatively more heavy than purchases of steel mill equipment. No change is reported in the status of extensive mill changes and modernization planned by the leading interest here.

San Francisco—Lodge & Shipley Machine Tool Co. has booked a geared-head gap lathe for Mountain View, Calif., a navy award, at $2941. Van Dyck-Churchill Co. was awarded a shaper-miller for the same point at $1934. Kemp Machinery Co., Baltimore, is low on a metalworking shaper for Puget Sound at $2991 and Mitts & Merrill, Saginaw, Mich., is low on a keyseating machine for the same yard at $3155.

Bids close Feb. 21 on two engine lathes and two selective geared-head lathes for Mare Island, and on Feb. 28 on a milling machine. On the latter date bids close on a milling machine for Mountain View.

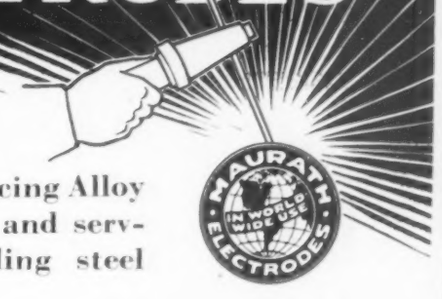
Cleveland—Inquiries and sales of machinery and equipment show no improvement in this territory, but dealers and builders refuse to regard the outlook as anything but favorable. Prices hold firm. Used equipment sales are unimportant.

Defines Bolt Threads

The following specifications covering cut thread and rolled thread bolts were adopted recently by the American Institute of Bolt, Nut and Rivet Manufacturers: "Bolts sold or labeled as cut thread have full size shanks with finished points. Bolts sold or labeled as rolled thread have scant shanks and are not pointed."

MAURATH

STAINLESS AND HEAT-RESISTING ARC WELDING ELECTRODES



If you weld stainless alloys buy from the oldest company producing Alloy Electrodes exclusively and serving the world's leading steel producers and users.

All popular analyses of chrome and chrome-nickel electrodes carried in stock.

Maurath, Inc.

3139 Croton Ave., Cleveland, Ohio

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.50c, *Conn., for copper*

SHEETS	
Yellow brass (high)	11.00
Copper, hot rolled	13.62½
Lead sheets, cut, to jobbers	**7.00**
Zinc sheets (100-lb. base)	**9.00**
TUBES AND PIPES	
Seamless yellow brass (high)	13.25
Seamless copper	12.37½
RODS	
Yellow brass (high, full turning)	8.50
Naval brass	9.62½
ANODES	
Copper, untrimmed	10.50
WIRE	
Yellow brass (high)	11.00

Old Metals

Dealers' buying prices, cents lb.

NO. 1 COMPOSITION RED BRASS	
New York	2.37½ to 2.62½
Chicago	2.00 to 2.12½
Cleveland	2.25 to 2.50
St. Louis	2.25
HEAVY YELLOW BRASS	
New York	1.75 to 1.87½
HEAVY COPPER AND WIRE	
New York	3.50 to 3.75
Chicago, No. 1	2.87½ to 3.00
Cleveland	2.75 to 3.00
St. Louis	2.50
COMPOSITION BRASS BORINGS	
New York	2.25 to 2.50
YELLOW BRASS TUBING	
Cleveland	1.50 to 1.75
LIGHT COPPER	
New York	2.62½ to 2.75
Chicago	2.00 to 2.12½
Cleveland	2.25 to 2.50
St. Louis	2.25
LIGHT BRASS	
Chicago	0.87½ to 1.00
Cleveland	1.00 to 1.12½
St. Louis	[illegible]
LEAD	
New York	2.00 to 2.25
Cleveland	1.50 to 2.00
Chicago	1.75 to 2.00
St. Louis	2.00
ZINC	
New York	1.12½ to 1.25
Cleveland	1.00 to 1.12½
Chicago	1.00 to 1.12½
St. Louis	1.25
ALUMINUM	
Clippings, new, soft, Cleve.	9.50 to 10.00
Clippings, hard, Cleveland	6.00 to 7.00
Borings, Cleveland	2.50 to 3.00
Mixed cast, Cleveland	3.75 to 4.00
Mixed cast, St. Louis	4.00 to 4.25

Secondary Metals

Brass ingot, 85-5-5-5	5.25
Remelt aluminum No. 12	8.00 to 9.00

Metals

Copper Develops Better Tone But Lead Is Less Active—Tin Moves Higher—Zinc Weakens

New York—An improved tone developed in copper last week but lead, which has been relatively the most active of the metals, sold only in scattered carlots. Zinc moved to still lower levels and remained in poor demand. Aluminum and nickel held steady and antimony was fairly so.

Copper—Electrolytic metal held firm at 5.00c, Connecticut basis, as quoted by custom smelter interests, for delivery through June. Mine producers remained out of the market. Increased buying interest developed both for first and second quarter positions. Domestic producers, it is understood, may shut down April 1 in an effort to reduce the burdensome stocks overhanging the market, which were reported by the department of commerce at 490,000 tons Dec. 31, 1932. Shipments are understood to be running about 20,000 tons monthly. Somewhat better buying and slightly higher prices abroad also have aided the tone of the domestic market. Copper and brass products, brass ingot and copper bearing scrap showed little change.

Lead—Consumers have been buying mostly for immediate or nearby shipment but in carlots, which indicates a light stock position. February requirements are estimated to be no more than 50 per cent covered. January shipments are reported to have fallen below the December total. Prices maintained recent steadiness.

Zinc—Continued dull demand and efforts to force sales on the part of some sellers brought the price on prime western metal down to 2.65c, East St. Touis, last week. Stocks increased nearly 10,000 tons during December and January and are expected to rise forther during the current month. Zinc sellers had the smallest amount of unfilled business on their books at the end of January in years.

Antimony—Prices showed little change during the week but lacked adequate test due to slow buying.

Tin—Some improvement in buying was reported and prices held well at somewhat higher levels. The stronger market here largely reflected strength in sterling exchange and higher prices in London rather than any material buying movement in this country.

Aluminum—Quietness continued to rule with prices steady on both virgin and remelt ingot.

By-Product Shipments Up

New York—Naphthalene and sulphate of ammonia are seasonally active, with shipments increasing. Some spot business also has developed on the former. Distillates are moving in unchanged volume, consumers specifying needs close to requirements. Prices are unchanged.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.153 to 0.173

Per Pound at Producers' Plants

Naphthalene flakes	**4.75 to 5.75**
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$1.10

Quicksilver More Active

New York—Quicksilver prices have firmed up under active buying. The metal is being quoted $48.50 a virgin flask of 76 pounds in round lots, and $49.50 in small lots. Some sellers are asking $49 to $50, depending on quantity.

Nonferrous Metal Prices of the Week, Cents a Pound

Spot unless otherwise specified

	Copper			Straits Tin			Lead			Aluminum		
	Electro., del. Conn.	Lake, del. Midwest	Casting, refinery	New York Spot	New York Futures	Lead N. Y.	East St. L.	Zinc St. L.	98-99%	Antimony Spot, N. Y.	Ingot Nickel
Feb. 3	5.50	5.12½	4.75	23.45	23.65	3.00	2.87½	2.80	22.90	5.75	35.00
Feb. 4	5.00	5.12½	4.75	23.50	23.70	3.00	2.87½	2.80	22.90	5.75	35.00
Feb. 6	5.00	5.12½	4.75	23.75	23.95	3.00	2.87½	2.80	22.90	5.75	35.00
Feb. 7	5.00	5.12½	4.75	23.65	23.90	3.00	2.87½	2.75	22.90	5.75	35.00
Feb. 8	5.00	5.12½	4.75	23.55	23.75	3.00	2.87½	2.65	22.90	5.75	35.00
Feb. 9	5.00	5.12½	4.75	23.80	24.00	3.00	2.87½	2.65	22.90	5.75	35.00
Feb. 10	5.00	5.12½	4.75	23.70	23.87½	3.00	2.87½	2.65	22.90	5.75	35.00

Pacific Coast

Plate, Shape and Pipe Sales Higher Than in 1932—Seattle Broadens Ban on Foreign Iron And Steel—Much Pipe Needed For Waterworks Plan There—Prices Hold on Most Lines

San Francisco—(*By Air Mail*)—Activity during the past week was confined, for the most part, to structural shapes and cast iron pipe. So far this year bookings of plates, structural shapes and cast iron pipe exceed the tonnage placed for the same period in 1932.

Plate inquiries are slow in coming forth. Westinghouse Electric & Mfg. Co. was low bidder on 1500 tons for gates and liners for the Hoover dam, Boulder City, Nev. Bids open this week on 199 tons of cold-rolled sheet steel for Mare Island, Calif. Prices are weak and 1.85c. c.i.f., appears to be general.

Included among larger structural awards was 380 tons for a bridge at Knights Landing, Calif., placed with the Pacific Coast Engineering Co., and 230 tons for a bridge at Stockton, Calif., for the Southern Pacific Co., booked by the Moore Drydock Co. Palm Iron Works took 100 tons for the Kit Carson school in Sacramento, Calif. Bids open March 15 for 750 tons for a postoffice at San Diego, Calif., and Feb. 15 for 250 tons for a balloon hangar at the dirigible station, Sunnyvale, Calif. Bids have been taken on 200 tons for a postoffice at Yuma, Ariz., on which Robert E. McKee, Los Angeles, is low on the general contract.

The cast iron pipe market was the most active one of the week and over 1750 tons were reported placed. United States Pipe & Foundry Co. took 692 tons for Pasadena, Calif., and American and the National Cast Iron Pipe Cos. secured, between them, the remainder of 598 tons. An unnamed interest took 197 tons for Soledad, Calif. The United States Pipe & Foundry Co. was low on 570 tons for Oakland, Calif., and the Pacific States Cast Iron Pipe Co. was low on 129 tons for Santa Cruz, Calif.

Water System Takes Much

Seattle—The Pacific Northwest iron and steel markets are spotted. While no branch reports any great activity, several public jobs of some size are giving hopes of improvement in the near future.

Sentiment in favor of domestic materials is growing. Seattle's city council is considering restricting bids for 5690 tons of sheet steel piling for the local waterfront improvement to American producers. On other city contracts materials will be limited to those manufactured locally as far as possible.

Seattle's proposed water system improvement, estimated to cost $3,500,000, will include a concrete aqueduct 96 inches in diameter and 13,500 feet long; a steel tank of 1,500,000 gallons capacity; a concrete water basin of 50,000,000 gallons; 14,400 feet of 20 and 24-inch cast iron pipe; 17,500 feet of 30-inch cast iron or steel pipe; unstated lengths of 60 and 78-inch steel, cast iron, concrete or wood stave; 28,000 feet of 42-inch, 58,000 feet of 66-inch, 24,000 feet of 48-inch, 6100 feet of 24-inch and miscellaneous tonnages of 30-inch steel pipe. Bids have not yet been invited.

Steel in Europe

Steel Entente Given New Life for Five Years

London—(*By Radio*)—The European steel entente has been reconstituted in principle for five years, subject to future formation of international export selling syndicates, details of which are to be worked out, one Belgian steelworks continuing its dissenting attitude. British steel interests are hopeful of a resulting rise in Continental steel prices.

Inquiries for east coast hematite are increasing and some shipbuilding orders are now coming in. Trade in the Midlands is quiet. Exports of galvanized sheets are fair, though Belgian competition is severe. Tin plate trade is steady.

Continental markets are quiet but the weakening tendency has been checked by the reorganization of the steel entente.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Feb. 9

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON		£ s d		£ s d
Foundry, 2.50-3.00 Silicon	$10.03	2 18 6	$8.27	1 14 0
Basic bessemer	9.26	2 14 0*	6.57	1 7 0
Hematite, Phos. .03-.05	10.12	2 19 0	.....	.....
SEMIFINISHED STEEL				
Billets	$16.72	4 17 6	$9.98	2 1 0
Wire rods, No. 5 gage	25.73	7 10 0	21.90	4 10 0
FINISHED STEEL				
Standard rails	$26.58	7 15 0	$26.77	5 10 0
Merchant bars	.99c	6 10 0	.53c	2 8 0
Structural shapes	1.13c	7 7 6	.46c	2 1 6
Plates, †¾ in. or 5 mm.	1.30c	8 10 0	.66c to .69c	3 0 0 to 3 2 6
Sheets, black, 24 gage or 0.5 mm.	1.30c	8 10 0	1.24c	5 12 6
Sheets, gal., 24 gage, corr.	1.61c	10 10 0	1.49c	6 15 0
Bands and strips	1.19c	7 15 0	.74c to .77c	3 7 6 to 3 10 0
Plain wire, base	1.42c	9 5 0	1.18c	5 7 6
Galvanized wire, base	1.68c	11 0 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.68c	11 0 0	1.27c	5 15 0
Tin plate, box 108 lbs.	$ 2.74	0 16 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

		£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$10.03	2 18 6	$ 8.02	205	$ 8.20	295	$14.99	63
Basic bessemer pig iron	9.26	2 14 0*	6.26	160	7.78	280	16.53	69.50
Furnace coke	2.32	0 13 6	4.69	120	3.06	110	4.57	19.20
Billets	17.15	5 0 0	14.47	370	10.43c	375	22.96	96.50
Standard rails	1.26c	8 5 0	1.25c	697	1.50c	1,150	1.43c	132
Merchant bars	1.03c	6 15 0	.95c	530	.62c	480	1.19c	110
Structural shapes	1.34c	8 15 0	.99c	550	.61c	475	1.16c	107.50
Plates, †¾-in. or 5 mm.	1.34c	8 15 0	1.17c	650	.75c	580	1.37c	127
Sheets, black	1.45c	9 10 0§	1.44c	800‡	.91c	700‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.80c	11 15 0	2.39c	1,325	1.69c	1,300	4.00c	370
Plain wire	1.42c	9 5 0	2.03c	1,130	1.69c	1,300	1.92c	178
Bands and strips	1.45c	9 10 0	.90c	500	.81c	625	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.

STEEL, WROUGHT AND CAST IRON PIPE, AND TUBING

Base $200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads, Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago delivered, 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
¼ & ⅜	57	34	½	28	10½
½	62	49½	¾	33	16½
¾	65½	55	1—1¼	36	20½
1—3	67½	57	2	38	21

LAP WELD

2	61	50½	2	26	12½
2½ to 6	64½	54	2½—3½	33	18½
8	62	51	4—6	35	22
10	60	49	7—8	34	21½
12	59	48	9—12	31	16½

BUTT WELD

Extra strong, plain ends

⅛	48	33	¼ & ⅜	+7	+41
¼ & ⅜	53½	38½	½	28	12½
½	59	49½	¾	33	17½
¾	63½	54	1—2	39	23

LAP WELD

Extra strong, plain ends

2	59	49½	2	34	18½
2½ to 4	62½	53	2½—4	39	25
5 & 6	62	52½	4½—6	38	24
8	58	47	7 & 8	36	22
10	51½	40½	9—12	26	13½
12	50½	39½			

STEEL LINE PIPE

2 to 3 butt	66½	2½ to 6 lap	63½
2 lap	60	8 lap	61
10 lap	59	12 lap	58

Discounts on steel pipe are net and not subject to any point or preferential. On iron pipe, the discounts are net.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		*Charcoal Iron*	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Quantity discounts same as for hot rolled, in next column. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Quantity discounts are: Under 10,000 pounds, 10 points and 5 per cent; 10,000 to 24,999 pounds, 6 points and 5 per cent; 25,000 pounds to carload, 2 points and 5 and 5 per cent; carload and over, base discount and 5 and 5 per cent. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. .....$32.00 to 33.00
Four-inch, Birmingham .... 35.00 to 36.00
Four-inch, Chicago ..... 43.40 to 44.40
Six to 24-inch, Chicago..... 40.40 to 41.40
Six-inch and over, N. Y..... 32.00 to 34.50
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $90.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $3 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore*	2.35c
Boston††	2.90c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.40c
Los Ang.	3.30c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3 25c

IRON BARS

Baltimore	2.35c
Boston††	3.10c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.10c-3 25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10c-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl...	2.10c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.62½c
Pittsburgh	2.60c
San Fran. cl.	2.40c
San Fran. lcl	2.80c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore*	2.35c
Boston††	3.00c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	2.65c
Los Ang.	3.30c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore*	2.35c
Boston††	3.00c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York(d)	3.20c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore*	2.80c
Boston††	2.90c-3.00c
Buffalo	3.10c-3.25c
Chattanooga	3.50c
Chicago	2.75c-2.90c
Cincinnati	3.05c
Cleveland	3.00c
Detroit	2.90c-3.05c
Houston	3.35c
Los Ang.	3.60c
New York	3.00c
Portland	4.00c
Phila.*† (e)	2.90c
Pitts.**	2.65c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.00c-3.15c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston††	3.85c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.45c
Cincinnati	3.50c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York	3.25c
Phila.*†(e)	3.40c
Pitts.**	3.35c
Portland	4.50c
San Fran.	3.90c
Seattle	4.50c
St. Louis	3.70c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Buffalo	4.00c
Boston††	4.05c
Chattanooga	3.95c
Chicago	3.50c-3.75c

††Base 15,000 lbs., extras on less.

Cincinnati	3.90c
Cleveland	3.75c
Detroit	3.75c
Houston	3.57c
Los Ang.	4.50c
New York	3.75c
Phila.*†(e)	3.75c
Pitts.**	3.85c
Portland	5.00c
San Fran.	4.55c
Seattle	5.00c
St. Louis	4.00c
St. Paul	4.19c
Tulsa	5.10c

†BANDS

Baltimore	2.65c
Boston††	3.40c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	2.85c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.85c
San Fran.	3.15c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

†HOOPS

Baltimore	2.65c
Boston	4.90c
Buffalo	3.95c
Chicago	3.50c
Cincinnati	3.75c
Det. No. 14 & lighter	3.30c
New York	3.30c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	3.75c

†New extras apply.

COLD FIN. STEEL

Rounds and Hexagons

Baltimore (c)*	3.48c
Boston	3.60c
Buffalo	3.00c
Chattanooga*	3.65c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York(g)	3.54c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran(d)(f)	5.55c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.36c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. Phila. bar base 3.35c

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.20c
Buffalo	5.25c
Chicago (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(a) Rounds, hex. only.
(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
(f) Rounds only.
(g) Bessemer analysis extras included.
‡Domestic bars.
*Plus quan. extras.
**Under 25 bundles.
*†50 or more bundles

STATISTICS OF IRON AND STEEL INDUSTRY

Compiled by department of commerce, except: Unfilled tonnage by United States Steel Corp.; foundry equipment orders by Foundry Equipment Manufacturers association; river traffic by United States engineer at Pittsburgh; electric power by department of interior, geological survey

Automobiles

Units Production

1931	—United States— Total*	Passenger cars	Canada Total
Dec.	121,541	96,753	2,432
Yr.	2,389,738	1,967,055	82,621
1932			
Jan.	119,344	98,706	3,731
Feb.	117,413	94,085	5,477
Mar.	118,959	99,325	8,318
April	148,326	120,906	6,810
May	184,295	151,683	8,221
June	183,106	160,103	7,112
July	109,143	94,678	7,472
Aug.	90,325	75,898	4,067
Sept.	84,150	64,735	2,342
Oct.	48,702	35,102	2,923
Nov.	59,557	47,293	2,204
Dec.	107,403	85,908	2,139
Year	1,370,728	1,134,422	60,816

*Difference of total and passenger cars equals number of trucks. †Average monthly shipments, 1922-23-24 taken as 100.

Fabricated Shapes

Net Tons

1931	Bookings Tonnage	Per cent of capacity	Shipments Tonnage	Per cent of capacity
Dec.	97,600	24.4	122,800	30.7
Yr.	1,880,800	39.2	1,811,600	37.7
1932				
Jan.	48,400	12.1	65,600	16.4
Feb.	62,000	15.5	78,000	19.5
Mar.	64,400	16.1	82,400	20.6
April	64,800	16.2	68,400	17.1
May	90,800	22.7	72,400	18.1
June	86,800	21.7	83,200	20.8
July	69,200	17.3	83,600	20.9
Aug.	78,800	19.7	85,600	21.4
Sept.	111,200	27.8	90,800	22.7
Oct.	74,400	18.6	86,400	21.6
Nov.	51,600	12.9	76,000	19.0
Dec.	145,600	36.4	68,800	17.2
Year	948,000	19.8	942,400	19.6

Fabricated Plates

Net Tons Bookings

1931	Total	Oil Storage Tanks	Miscellaneous
Dec.	16,442	778	13,891
Yr.	302,509	37,346	213,850
1932			
Jan.	17,613	4,783	12,124
Feb.	17,755	4,115	11,777
Mar.	12,564	1,161	10,022
April	14,074	1,406	11,167
May	11,788	2,310	9,356
June	18,383	2,808	10,209
July	12,485	3,661	6,586
Aug.	11,916	4,394	6,911
Sept.	11,013	3,753	6,801
Oct.	16,737	5,941	9,528
Nov.	7,873	1,446	6,065
Dec.	9,519	3,154	5,534
Year	161,810	38,976	109,085

Railroad Locomotives

Units Shipments

1931	Domestic	Foreign
Dec.	2	..
Yr.	150	16
1932		
Jan.	..	..
Feb.	1	4
Mar.	..	3
April	8	..
May	13	2
June	17	..
July	9	..
Aug.	9	..
Sept.	9	4
Oct.	10	2
Nov.	8	..
Dec.	..	..
Year	80	15

Foundry Equipment Order Index†

1931	
Dec.	26.3
Yr.	....
1932	
Jan.	20.5
Feb.	27.6
Mar.	27.5
April	13.7
May	18.0
June	14.2
July	18.7
Aug.	18.6
Sept.	11.9
Oct.	23.2
Nov.	11.5
Dec.	16.5
Year	....

Malleable Castings

Net Tons

1931	Output	Shipments	Orders booked
December	19,776	18,423	18,125
Year	288,831	302,099	279,145
1932			
Jan.	20,399	19,658	20,332
Feb.	19,834	19,432	17,808
March	17,844	19,392	16,235
April	15,461	16,847	16,185
May	16,597	18,075	16,463
June	15,018	16,450	13,330
July	9,447	11,359	8,658
August	6,804	8,631	7,776
Sept.	10,051	9,746	10,582
Oct.	12,274	11,615	12,850
Nov.	13,622	12,745	14,304
Dec.	14,128	14,366	14,504
Year	171,479	178,316	169,027

Steel Castings

Net Tons

1931	Total bookings	Total production
December	20,799	22,064
Year	393,595	437,252
1932		
Jan.	17,393	18,395
Feb.	17,015	18,759
March	16,593	20,433
April	12,801	17,474
May	11,342	14,463
June	12,765	12,839
July	9,301	11,460
August	10,147	12,331
Sept.	11,883	11,337
Oct.	11,896	12,480
Nov.	13,235	13,712
Dec.	13,022	13,680
Year	155,837	175,831

Mechanical Stokers

—Sales—

1931	Fire tube boilers	Water tube boilers
December	117	22
Year	1,889	574
1932		
Jan.	70	45
Feb.	63	26
March	60	23
April	80	15
May	41	30
June	65	48
July	70	44
August	99	38
Sept.	117	46
Oct.	96	21
Nov.	79	12
Dec.	78	20
Year	920	367

Steel Furniture

Dollars, 000 omitted

1931	Business shipments	Shelving, shipments
December	1,075	298
Year	15,287	4,439
1932		
Jan.	977	269
Feb.	807	229
March	780	259
April	753	190
May	653	196
June	671	177
July	521	155
August	543	141
Sept.	577	146
Oct.	622	142
Nov.	581	125
Dec.	610	135
Year	8,102	2,166

Babbitt Metal

Pounds 000 omitted

1931	(a) Total production	(b) Sales
December	1,624	1,047
Year	26,020	18,438
1932		
Jan.	1,743	1,281
Feb.	1,577	1,142
March	1,595	1,188
April	1,419	1,060
May	1,345	947
June	1,319	858
July	1,275	870
August	1,319	994
Sept.	1,406	1,105
Oct.	1,573	1,192
Nov.	1,265	944
Dec.	1,149	823
Year	16,993	12,412

(a) by 40 plants. (b) by 30 manufacturers who produce for sale, including 5 who also report consumption of own metal.

Electric Power

Millions Kilowatt Hours

1931	Production*
Dec.	7,773
Year	91,729
1932	
Jan.	7,543
Feb.	7,002
March	7,302
April	6,779
May	6,635
June	6,549
July	6,526
Aug.	6,743
Sept.	6,735
Oct.	7,054
Nov.	6,939
Dec.	7,127
Year	82,939
1933	
Jan.	.....

*For public use.

Coke

Net Tons Production

1931	By-Product	Beehive
Dec.	2,233,997	82,000
Year	32,454,604	1,273,900
1932		
Jan.	2,100,923	87,900
Feb.	1,995,780	85,800
March	2,089,391	87,400
April	1,883,391	56,000
May	1,742,517	45,000
June	1,536,712	41,200
July	1,523,422	38,200
Aug.	1,473,904	40,700
Sept.	1,544,491	45,700
Oct.	1,738,716	67,600
Nov.	1,751,581	81,400
Dec.	1,786,085	95,600
Year	21,166,913	772,500
1933		
Jan.	.....	.....

Steel Barrels

Units

1931	Production	Shipments
Dec.	382,483	385,435
Year	5,984,975	6,010,280
1932		
Jan.	359,685	352,135
Feb.	367,472	369,882
March	452,294	453,621
April	447,379	452,191
May	427,299	425,662
June	651,916	654,561
July	352,614	353,336
Aug.	362,993	360,509
Sept.	395,640	398,241
Oct.	422,637	417,490
Nov.	373,190	376,647
Dec.	300,205	307,259
Year	4,920,117	4,928,307
1933		
Jan.	.....	.....

River Traffic

Net Tons

1931	Allegheny	Monongahela	Ohio
Dec.	.....	21,360	51,138
Year	20,882	471,881	746,448
1932			
Jan.	.....	25,327	45,199
Feb.	2,200	20,089	40,737
March	550	32,234	33,254
April	501	23,849	32,972
May	2,550	23,941	28,267
June	3,611	18,291	27,306
July	1,400	13,677	22,895
Aug.	3,400	26,390	43,621
Sept.	1,200	18,831	28,557
Oct.	21,280	24,305	40,399
Nov.	25,225	29,851	45,735
Dec.	7,200	28,169	30,048
Year	67,117	284,954	418,990
1933			
Jan.	.....	.....	.....

Unfilled Tonnage

Tons

1931	United States Steel Corp. Unfilled orders	Net change	Per cent change
Dec.	2,735,353	198,538—	6.77—
Year	.....	.....	.....
1932			
Jan.	2,648,150	87,203—	3.19—
Feb.	2,545,629	102,521—	3.88—
March	2,472,413	73,216—	2.87—
April	2,326,926	145,487—	5.88—
May	2,177,162	149,764—	6.44—
June	2,034,768	142,394—	6.54—
July	1,966,302	68,466—	3.36—
Aug.	1,969,595	3,293+	0.16+
Sept.	1,985,090	15,495+	0.78+
Oct.	1,977,040	11,950+	0.62+
Nov.	1,968,301	28,739—	1.45—
Dec.	1,968,140	161—	0.01—
Year	.....	...	.....
1933			
Jan.	1,898,644	69,495—	3.5—

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

LYNN, MASS.—Utility Mfg. & Service Co. has started business at 53 Market street manufacturing a gas appliance to increase burner efficiency. Richard J. Harding and George H. Van Sciver are owners.

LYNN, MASS.—Lynn Sales Co. recently began manufacturing at 226 Broad street, making filters for range oil burners and an oil burner. The company is using about 4000 square feet of manufacturing space. J. S. Weeden is president and C. O. Hall treasurer.

LYNN, MASS.—P & M Machine Co., formerly at 312 Union street, Lynn, has moved to 324 Union street, where larger manufacturing space is available. The company manufactures shoe perforating dies, experimental and other machines. The company started operations a few months ago under the name of J. Platts Machine Shop. John Platts and Harold E. McIntyre are owners.

New Jersey

ELIZABETH, N. J.—Union Iron Works Inc. has been incorporated with 600 shares no par value to manufacture machinery, by Pierson, Schroeder & Brand, attorneys, 84 Washington street, Hoboken, N. J.

NEWARK, N. J.—Continental Tool & Die Works Inc. has ben incorporated with 200 shares no par value to manufacture tools and dies, by Aaron Levinstone, attorney, 24 Commerce street, Newark, N. J.

Pennsylvania

PHILADELPHIA—Paramount Metal Smelting Co. has been incorporated with $5000 capital to smelt and refine nonferrous and other metals, by Harry J. Likoff, 6117 Carpenter street, Philadelphia.

Ohio

CANTON, O.—Assets of the Bucher & Gibbs Plow Co., 800 Second street, will be sold at public auction Feb. 21 by Industrial Plants Corp., auctioneer. Included is machine shop equipment consisting of lathes, shapers, planers, drill presses, grinders, foundry equipment, blacksmith shop equipment, woodworking machinery, small tools, motors and miscellaneous equipment.

Michigan

DETROIT—Detroit Moulding Corp. has been incorporated with $50,000 capital to manufacture garnish mouldings and operate a foundry and machine shop, by Glen R. Miller, 2730 Union Guardian building, Detroit.

DETROIT—Sterling French Machinery Co., 443 New Center building, has been incorporated with $25,000 capital to manufacture machinery, tools and equipment, by Charles E. French, 12837 Broadstreet, Detroit.

DETROIT—Central Bolt & Nut Co., 1155 Bellevue avenue, has been incorporated with $15,000 capital to manufacture bolts, nuts, hardware and automotive parts, by James I. Ford, 288 Marlborough avenue, Detroit.

DETROIT—Sani-Tube Cot Corp. has been incorporated with 50,000 shares no par value to manufacture specialties, by T. L. Haines, Ellwood City, Pa. Offices have been established in the Transportation building, Detroit.

LAPEER, MICH.—C. C. Tinker, city engineer, has completed survey and is preparing plans for a municipal electric light and power plant with distribution system, to cost about $200,000.

LAWTON, MICH.—Stearns-Stafford Inc. has been incorporated with $25,000 capital and 300 shares no par value to manufacture metal products, by Richard T. Savage, 1205 Sherwin avenue, Chicago.

MT. CLEMENS, MICH.—Construction quartermaster, Selfridge Field, is having plans made for reconstruction of the drainage pumping station, recently severely damaged by an explosion, at a cost of about $20,000.

ST. JOHNS, MICH.—Highway commission of Clinton county plans to build a county garage building and equip for care of county vehicles.

UNIONVILLE, MICH. — Landside Shear Co. has been incorporated with $1000 capital to manufacture steel plow landsides, by Orson A. Hiser, Unionville, Mich.

Indiana

EAST CHICAGO, IND.—Williams Bros & Miller Inc. has been incorporated with 100 shares no par value to manufacture heating equipment, stokers and oil burners, by D. W. Williams, 4209 Homerlee street, East Chicago, Ind. and associates.

HAMMOND, IND. — Hammond, Whiting and East Chicago plan a tri-city municipal electric power plant estimated to cost $250,000, as a matter of economy in operation.

LOGANSPORT, IND.—J. A. Fettig & Sons Inc. has been incorporated with 100 shares no par value to manufacture sheet metal products, by Joseph A. Fettig and associates.

Illinois

CHICAGO—Sayer Renewable Reseat Tool Co., 549 West Randolph street, has been incorporated with $8000 capital to manufacture labor-saving devices, by Ewart H. Bolton and associates.

CHICAGO — Fredericks Armature Corp., 2332 Logan boulevard, has been incorporated with 200 shares no par value to manufacture electrical devices, by Julian Silvertrust, 1 North LaSalle street, Chicago.

WINNETKA, ILL.—Fo-Burr Co. 759 Arbor Vitae road, has been incorporated with 80 shares no par value to manufacture tools and machinery, by Packard, Barnes, McCaughey & Schumacher, 1517 First National Bank building, Chicago, correspondents.

Southern States

WASHINGTON—Bureau of supplies and accounts, navy department, will open bids for machine tools as follows: Feb. 21, schedule 9600, one hardness testing machine for delivery at Norfolk, Va.; schedule 9571, two motor-driven geared head engine lathes, for Mare Island, Calif.; Feb. 28, schedule 9567, one motor-driven universal milling machine for Mountain View, Calif.; schedule 9572, one motor-driven milling machine, for Mare Island Calif.; schedule 9597, one motor-driven milling machine for Brooklyn, N. Y.; schedule 9598, one motor-driven vertical milling machine for Philadelphia; schedule 9605, two motor-driven pedestal-type grinders for Puget Sound, Wash.; schedule 9606, one motor-driven double-spindle shaper and frequency changers, for Puget Sound, Wash.

NEW ORLEANS—Monarch Oil Refining Co., N. V. Duncan president, has taken over and will operate the U. S. Refining plant at Southport, La. Power plant improvements are planned.

NEW ORLEANS—Texas Co., New York, has awarded a contract to Hooper & Ricou, Hibernia Bank building, for construction of a combination garage and warehouse 36 x 80 feet and pumphouse 8 x 12 feet at 919 St. Charles street.

NEW ORLEANS—May Trailers Inc., Shreveport, La., has bought a site 90 x 120 feet at 4120 South Carrollton avenue for a branch assembly plant. About $35,000 will be spent in remodeling two buildings on the site and installing equipment. H. B. May, Shreveport, is president. The company manufactures steel and wooden trailers for oilfield and lumber hauling use.

MERIDIAN, MISS.—Meridian & Bigbee River railroad will build a 21-mile extension from Crowell, Ala., to Myrtlewood, Ala., a loan of $600,000 from the Reconstruction Finance Corp. having been authorized.

Missouri

ST. LOUIS.—Freedman Piston Corp. has been organized by Louis Freedman to manufacture a special piston ring expander for engines, compressors and similar devices. Headquarters are at 2315 North Ninth street.

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By

Edward S. Lawrence

. . .

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Construction, Enterprise

Plowshare Edge Corp., 8000 North Broadway, has been organized by Edwin B. Meissner, president, to manufacture detachable plowshare edges. The company is a subsidiary of the St. Louis Car Co.

Arkansas

PARAGOULD, ARK.—Bonds for $100,000 have been voted for an electric light and power plant and W. A. Fuller Co., 2916 Shenandoah avenue, St. Louis, has been chosen engineer to make plans.

TEXARKANA, ARK.—Tex-Ark Refining Co. has been organized by C. C. Yeager, president, to build and operate an oil refinery in the new Miller county oil field, of the skimming type, with 1000 barrels daily capacity.

Oklahoma

OKLAHOMA CITY, OKLA.—Oklahoma City Refining Co. has been incorporated with $25,000 capital to operate an oil refinery, by Ray L. Walde, 1030 South Robinson street, Oklahoma City, Okla.

TULSA, OKLA.—Automatic Valve Controller Co., recently formed to manufacture oilfield valves, will have its products manufactured by the Hinderliter Tool Co., Madison and Admiral streets, and will make no investment in plant or machinery at this time.

Texas

CONROE, TEX.—Tidewater Pipe Line Co., Philcade building, Tulsa, Okla., plans to build a 40-mile 6-inch oil line from the Conroe field to water terminals at Houston, Tex. C. R. Barton, Philcade building, Tulsa, is manager of the southwestern division.

Mirrors of Motordom

(*Concluded from Page* 10)

inches, indicating the adoption of the cast crankshaft so long rumored.

With Briggs, Ford and Hudson—first three automotive interests to be affected—resuming on a greater or lesser scale Detroit believes the back of the automotive labor strike to be broken. The strike committee is understood to have a definite program mapped out; whether failure at these three plants proves a deterrent remains to be seen.

Increasingly a communistic plot is blamed for the disturbances. Were Briggs and Ternstedt, the latter supplying hardware for General Motors cars, to be closed, the stoppage of bodies and parts from these two interests would have very effectually tied up the greater part of the automotive industry. Indeed, when Ford went down the night of Jan. 26 the repercussion was country-wide.

With the communistic angle of the strike Detroit is utterly out of sympathy, yet the feeling is general that automotive labor, normally extremely docile, must have been pressed to the breaking point to have been such easy prey for red organizers. The fact that an important evening newspaper of Detroit was proud to record on its front page the news that it had been chosen to receive exclusive, official statements from the Briggs strike committee is significant.

Since plans for the production of 1933 models were adopted the industry has been driving on costs. The effect of this policy on steel and other commodity prices has been as widely diffused as the number of suppliers, but the application of the same policy to automotive labor touched off a tense situation in the industry's own front yard.

Wage Cut Is Canceled

Labor stands no chance of organizing the automotive industry, but it is scoring. In the case of Briggs it has won slightly higher wage rates and improved working conditions. An automobile manufacturer reported to be next after Hudson to be called out is said to have shelved a 10 per cent reduction. An employers' association has recommended that wage rates be left alone for six months.

There is considerable comment in Detroit that the resistance of labor may flag further deflation of labor and commodity prices. An extreme "bear" policy on wage rates and commodity prices, which in turn is reflected in wages, is only narrowing the demand for automobiles in the market which normally absorbs three-quarters of the industry's production, it is pointed out.

Only those in closest touch with the situation can state how many reds have filtered into the various automotive plants and how many undercover men are attempting to ferret them out. Some accept it as plausible that when Mr. Ford learned of the condition in the Fordson plant on Thursday, Jan. 26, he instantly ordered every Ford operation stopped, going so far as to pull telephone operators from their boards.

It is ironical that Mr. Ford, paying sweepers as much as $3.60 per day, should be the first to be pinched by the strike program when the Briggs workers shut off the production of bodies. It is recalled, too, that no automobile manufacturer has trained so many soviet engineers as Mr. Ford, yet last year when Detroit reds staged a demonstration they chose the gates of the Fordson plant, with fatal results.

Production of automobiles thus far in February has been dealt a blow by the shutdowns of Ford and Hudson and the lighter schedules of a number of small manufacturers. A partial offset is the virility of Chevrolet and Pontiac, but indications at this time point to a slightly smaller total than in January.

Final statistics on Chevrolet place January output at 64,000 units, largest for any month since July, 1931, and retail sales at 39,701 units, a 12 per cent increase over December. For February the schedule about equals January and will probably include several thousand of the new so-called Mercury line.

The recent release of 40,000 to 50,000 tons of steel by Chevrolet covers some March as well as late February requirements. Pontiac, which is manufactured by Chevrolet, is operating in February against a schedule of 12,000 units. It is largely Chevrolet and Pontiac which enabled General Motors to run its January sales up to 50,653 units from 19,992 in December. In January, 1932, General Motors sales totaled 47,942 units.

Buick will assemble about 6000 units in February, a gain of about 200 over January. Willys had scheduled 7000 units this month, but has retrenched about one third despite the start of production of the six.

Plymouth, whose February schedule is 10,000 to 12,000, has lengthened its wheelbase 1 inch to accommodate spare tires in front fender wells, this being accomplished by pushing the front wheels forward 1 inch. Originally, the 1933 wheelbase was 107¾ inches, compared with 112 inches last year, the overall length remaining 172 inches. It is reported that a redesign of the Plymouth, possibly for the spring trade, will regain the wheelbase of last year.

Show Sales 4-Year Record

Continental reports it is now employing 1100 men on its new models, but expects to add 3000 to 5000 additional. One hundred and fifty new dealers have been added to the original 75.

At the national automobile show in Chicago, which closed Feb. 4, it is reported that sales totaled $1,808,640, which was double the volume of 1932 and greater than either 1931 or 1930. During part of this period—the closing ten days of January—Chevrolet retail sales were 16,826 units, a rate of activity not equalled since the period ended June 20, 1932, just before the federal tax became effective.

Dodge has built for Lever Bros. four 2-ton trucks with bodies of Allegheny metal, the long side panels being No. 18 gage and the doors No. 20 gage. Ford, it will be recalled, several years ago built several passenger cars with hoods and bodies of the same metal, mostly No. 20 gage. One, a 2-door sedan, was in Detroit recently after being on the road two years, the body showing no appreciable deterioration.